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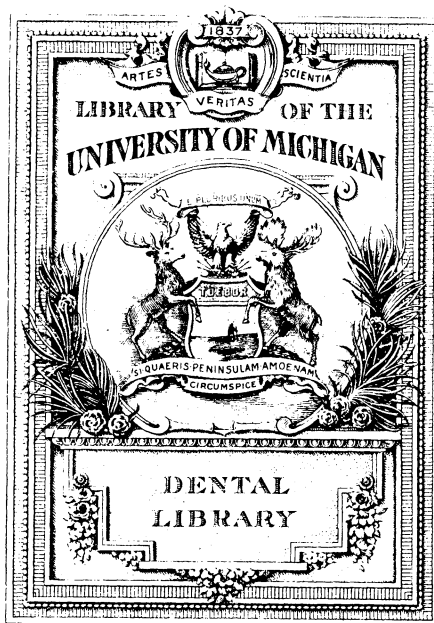
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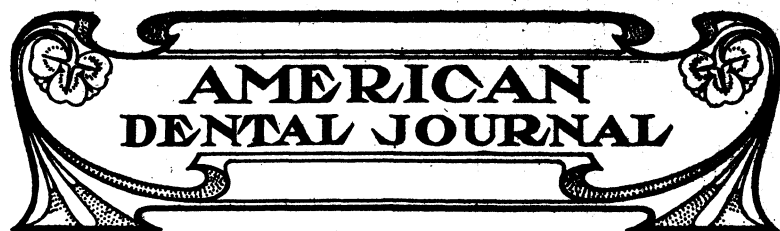
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LISTERINE TOOTH POWDER

A fourth of a century of continued, satisfactory employment of Listerine has demonstrated to many who have used it during this entire period, that Listerine is the best antiseptic for daily employment in the care and preservation of the teeth. Listerine Tooth Powder, then, is not intended to supplant Listerine in the daily toilet of the teeth, but is offered in response to a popular demand for a frictionary dentifrice to be used in conjunction with this well-known and time-tried antiseptic.

Listerine Tooth Powder is composed of precipitated carbonate of calcium, carbonate of magnesium, oil of cananga, and the antiseptic constituents of Listerine.

The simplicity of its formula, in itself commends the powder. The English precipitated chalk and magnesia are the finest obtainable, and absolutely free from grit; the oil of cananga possesses properties opposed to inflammatory conditions of the gums, and together with the antiseptic constituents of Listerine, adds to the desirable qualities of the product. However, it is to the list of articles which have been omitted from the formula that special attention is directed, and the manufacturers believe the profession will agree that the absence of pumice stone, cuttlefish bone or other abrasive substances, and of sugar, orris root or superficial perfume of any character (the usual ingredients of tooth powders and liable in themselves to fermentative action in the mouth), is a distinct advantage.

Lambert Pharmacal Co.

St. Louis, U. S. A.

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OUR POST GRADUATE COURSE

PORCELAIN.

T. ELHANAN POWELL, D. D. S.

CHAPTER VIII.

The various forms occurring in the proximo incisal cavities make it difficult to cover the ground in one article, so I find it best to



Fig. H.



Fig. I.

treat several typical cases and leave to the ingenious reader the task of applying the principles herein treated to other forms.

One form of cavity which is nearly always a "bug-bear," taxing the ingenuity to make a permanent restoration with either gold or porcelain, is the proximo incisal cavity, which is restricted to the

incisal third of the tooth; but, where the tooth is not exceedingly thin, labio-lingually, the restoration may be made with fairly satisfactory results using porcelain.

In Fig. G such a cavity is shown prepared, with a fairly square base toward the gingival, just sufficiently rounded to make the adaptation of the matrix comparatively easy.

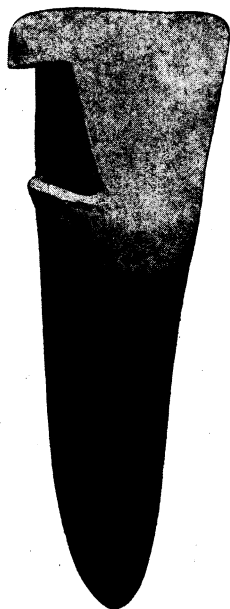


Fig. G.

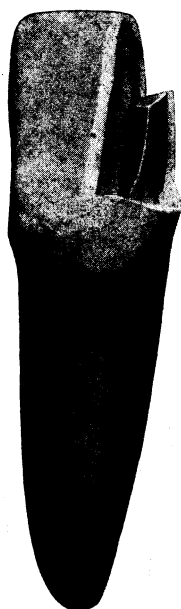


Fig. J.

Then, with the cork shape burr a deep seat is made in the direction of the pulp gradually sloping down toward the incisal end.

Usually, the square seat toward the gingival is as wide mesio-distally as the length of the restoration at the cutting edge. This seat in connection with the depth pulp-wise makes a retention which is usually adequate.

In H is shown a cavity extending from the gingival to the incisal edge, with the preponderance of decay, lingually. The labial wall is a straight line from incisal to gingival, slightly curving to the mesial near the gum line.

At the gingival line the seat is extended labio, linguo-distally, with a dip toward the pulp at the distal angle; then, beginning at

the labial point of this dip, make a groove labially extending to the incisal end. This makes a cavity broad seated pulp-wise and locked both labially and gingivally.

A similar cavity and a safer one is shown in Fig. I, with the same principle of preparation labio-proximally, but with a different mechanical construction lingually. The broad base is extended from



Fig. F. was omitted from last issue and shows the more modern method for cavity preparation for incisal restoration. The cavity is shown lingually and tells its own story, being cut deeply on the incisal and extending toward the gingival on the proximal both mesially and distally.



Fig. K.

the labial to the lingual, with a slight groove extending from the gingival to incisal. Then the lingual portion is liberally cut distally in the gingival two-thirds of the tooth.

In addition to cutting this lingual surface toward the distal, the lingual extension portion of the cavity is grooved *toward* the labial as well as being dipped toward the pulp, thereby making another locked form of inlay. This form of cavity has been the most satisfactory used in my practice, and rarely, if ever, has an inlay of this description been reset.

In J, the labial wall being badly broken down, a satisfactory restoration can be made by preparing the cavity in the following manner. Cut the labial wall from the incisal to the gingival, making a "step" in the incisal third; but instead of making sharp angles at this step, as we used to do, gracefully round these angles to facilitate the adaptation of the matrix. Then, in the gingival wall of the cavity, cut with a round burr a groove toward the pulp. On the lingual wall extend distally to a satisfactory distance in a perpendicular line from incisal, gingivally.

Then, toward the labial wall of this lingual portion of the cavity, make a slight groove; also groove the mesial aspect of the distal wall in the incisal third of the cavity.

In many cases, both the mesial and distal proximal walls are broken down. In such a compound filling often proves satisfactory and the best thing that can be done short of crowning.

In Fig. K is shown a tooth with a restoration made after this plan. The tooth is cut away on the proximal surfaces both distally and lingually, with rather broad seats gingivally. That portion of the crown remaining is left broad at the gingival and gradually diminishes in width toward incisal; also, broader labially than lingually.

This form of cavity permits the construction of an inlay which might in many cases be more satisfactory than crowning.

(To be continued.)

EUCALYPTOL IN FILLING ROOTS.

In regard to eucalyptol in filling root canals. I can assure you it has given me a great deal of comfort and satisfaction. It is the most saving thing we can put into root canals, even though we do sometimes force a little medicine through. It leaves the tooth quiet and it stays quiet. In forcing in the gutta percha point after putting in the eucalyptol I always either apply a hot instrument to that pulp chamber or play hot water over and warm that point and then work it down with a fine point, and I believe I get better results in that way than in trying to force it in the hard condition, depending on the softening of the eucalyptus.—*Dr. Wood, Register.*

OPERATIVE DENTISTRY.

BY R. B. TULLER, D. D. S.CLINICAL PROFESSOR OF OPERATIVE DENTISTRY, CHICAGO COLLEGE OF
DENTAL SURGERY.

PREVENTIVE MEASURES.

Nothing in dental science should be more the subject of thought, study, investigation and practice than prophylaxis, or preventive measures—measures that will not permit the incursion of disease and decay in the oral cavity. Especially is this pertinent as concerns the mouths of the young where degenerative symptoms are in their incipency, or possibly where they are not apparent. Prophylaxis is engaging the attention of many dentists, some specializing particularly in that direction, with a view to securing a clientele that do or will believe in the saving grace of expert attention, and who will cheerfully contract to co-operate under the advice and direction of the dentist.

It is no doubt true in these days that the dentist rarely comes into professional contact with a mouth where there is not some evidence of degeneracy, at least of the teeth; for the reason that nature has not as a rule in civilized generations, produced teeth of absolutely perfect construction, whatever she did for primitive man. Thus it is that but few people seek the services of a dentist until curative and reparative measures are incumbent and real prevention available only for what remains intact; or where therapy as concerns the adjacent tissues, may reinstate normal conditions. Other tissues of the mouth than the teeth when found impaired may generally be brought back to a normal state; but no therapy can restore a decayed tooth—not even Christian Science. Something artificial must be substituted after the surgery of removing decay.

But, take a healthy mouth, normal as concerns teeth as well as other parts, and is there any reason why a modern dentist, one advanced and qualified in up-to-date methods of dental science, cannot undertake to keep it so; provided, of course, that the patient will conscientiously follow his advice and fully co-operate in the effort?

Is it possible for a dentist to begin with a child with perfectly sound teeth and otherwise healthy, and who will come regularly as advised and will do his or her part faithfully (or say one of his own

children, directly under his control) and practice such preventive measures as will inhibit the carious exhibition so common to humanity in general? In the light of the latest understanding about the thoroughness of preventive measures, no doubt most satisfactory results may be obtained.

When Dr. George H. Cushing was at the height of his fame as one of the foremost and able operators of Chicago and of the country, a lady sitting under his expert manipulations of gold asked one day after a comment of delight about the beauty and seeming perfection of the work: "Doctor, will you undertake to guarantee these fillings?" The doctor's answer was: "Yes, Mrs. Doe; on condition that you leave the teeth with me."

He then took occasion to advise Mrs. Doe of the great necessity of the care that devolves upon the one who owns and wears the fillings, and emphasized that a part of that care was to return with them to the dentist at frequent intervals for his observation and such attention as might be needed, and as only a qualified dentist can give, and if he had the right co-operation the teeth would be preserved much longer than would otherwise be the case.

Now, unquestionably preventive measures can accomplish great things, and will pay a better dividend on the investment than any other outlay for the services of a dentist. It is a rational procedure, and should be the leading feature of things accomplished by dental science and practice; but it is well to keep in mind, and keep your patient in mind, that until the fountain of perpetual youth has been discovered and may be freely partaken of by all, both the teeth and surrounding tissues are going to yield something to growing years and natural wear and tear.

The practice of dental science is a co-operative scheme, and particularly as concerns prophylaxis, and there is emphasis to be put upon that fact. There is, too, a good bit of educational work to be done among the laity before the new prophylactic era will be in full swing; but that should not retard wholesome and earnest effort along preventive lines. The move is upward and consequently in the right direction.

Keeping the teeth clean is the first law of oral prophylaxis. Keep the entire mouth clean. In this the patient has a daily duty to perform, and an occasional duty to perform in visiting the dentist as he

may advise, and not wait until some disturbance jogs their memory or drives them in. It must be distinctly understood that neglect of this duty discharges the responsibility of the dentist as concerns prophylaxis.

Having a thorough understanding with patients that they will come when notified, it is well to reduce it all to a system, and the burden of keeping tab on the time when the patient is due again may be carried by the dentist. To that end the operator should have some printed reminders reading something like this:

Mrs. Soandso—Dear Madam: In accordance with your request, I beg leave to remind you that in your interests your teeth may need attention to keep them in order as I have contracted to do, with your co-operation. Will you kindly call for an appointment? My phone is —.

This notice should also have the usual office heading, together with office hours, and perhaps four or five blank lines for remarks.

Now, in connection with this printed form, there should be kept a card system of record for daily inspection to enable the operator or his assistant to know when to send the notices, also follow up if need be.

Now, it is needless to say, that earnest men in dentistry will understand that in the practice of prevention, cleaning teeth on the part of the dentist should mean more than the "lick and promise" that seems to be popular with some dentists at a dollar a shine. Cleaning teeth for a dollar means that when the operator thinks he has earned the dollar he quits. That sort of work will never do in practicing faithful prevention. Practicing prevention is going to be a leading feature of modern dental science. That means that every tooth must be systematically cleaned and polished on every surface, and before going to another tooth.

Going over every surface means going into every cranny, and exploring down or up under the free margins of the gum and removal of every trace of hidden deposit or accumulation. A careful operator will endeavor to do this with such delicacy as not to do serious injury to the gum. It is important to avoid many things, as much as possible, that are going to give pain. If there is a deep sore pocket whose lining is morbid, the wounding and tearing that usually has to be done to remove deposits, while it may be tempered by use of cocaine, is desirable, in that a fresh wound will heal quicker than an old sore.

And even in such cases where the operator wishes to break up the morbid pocket surface, it may yet be done in a gentle way devoid of the severe pain of unguarded manipulation.

There is known to sometimes exist on the several surfaces of a tooth what is known as bacterial plaques—a colony of germs which protects itself by a gelatinous covering, while on the tooth underneath is produced an acid that attacks enamel and makes the first step toward decay.

These plaques are not clearly visible to the naked eye, but may be so colored that they may be located and removed in several ways. Dr. H. C. Ferris, in Items of Interest, says:

Spray the mouth with the following:

R—*Iodine*m xix
Potassium iodidem xix
Aq. dist. q. s. ad.oz iv

To remove the discoloration use:

R—*Starch*dr iii gr ii
Aq. dist. q. s. ad.oz iv

This converts the iodine into iodide of starch, which may be washed off with

R—*Sodium carbonate*gr xviii
Aq. dist. q. s. ad.oz iv

used at a temperature of 115 degrees F.

If inspection shows incipient decay or defective enamel at the bottom of fissures or occlusal sulci of the teeth, a good preventive of decay is to apply a solution of nitrate of silver. Guard against getting it on soft tissues or where not wanted. A wooden toothpick is handy to carry a minute quantity to the fissure and work it in. After the nitrate is applied, wiped off and the fissures dried, a bit of paraffine may be put into the fissure and melted with a hot burnisher. This will flow into the depths of the crevice, and not being easily dislodged by mastication seals the place for some time. A thin mix of hydraulic cement may be used for same purpose. Evidence of superficial decay elsewhere about the teeth may be treated with silver nitrate followed with melted paraffine. Nitrate of silver discolors, but is better than decay. In exposed places, where discoloration is objectionable, the paraffine melted may be used, though it checks decay in a different way from nitrate of silver and is not so thoroughly

effective. In using paraffine the tooth should be made as dry as possible and paraffine made liquid by a heated instrument.

The value of dioxogen, or some preparation of peroxide of hydrogen as a frequent mouth wash, either full strength (3 per cent) or diluted, is well known. No other wash is like it. It attacks bacteria, decomposition or suppurative conditions as soap does dirt. It not only destroys bacteria but burrows into every minute recess; and as it bubbles and foams it carries away all particles of decomposition and putrescent matter; or, in other words, disposes of millions of microbes; and yet is as harmless to the tissues as water. There is something to it, but it is not unpleasant, and it leaves a sense of cleanliness in the mouth. It will sometimes cause the gum margins to turn white, as if cauterized, but that is entirely superficial, or confined to the mucous membrane, which very shortly returns to its healthy pink with no evidence of any damage. If one chooses, any other antiseptic mouth wash may be used afterward, and with more certainty of doing good. But no one should get the idea that any of these mouth washes can be depended on to preserve the teeth without giving them a good deal of other attention, and without trips to the dentist. They are helpful, some of them, no doubt, about fetid odors and tastes in the mouth, but bacteria would thrive in some of them, so far as their germicidal worth is concerned. The peroxide of hydrogen (H_2O_2) works both chemically and mechanically in clearing out bacteria, and may be depended upon as very useful and beneficial to both the teeth and soft tissues, but only as a help.

Fine pumice-flour wet up into a thick paste with dioxogen usually brings prompt results in removing stains from the teeth, and especially that due to that bacterial demonstration so often found on children's teeth, called *leptothrix buccalis*—a greenish stain at necks on anterior teeth.

A further prophylactic measure of great value is to massage the gums frequently, using the fingers, and pressing toward the necks of the teeth as though to squeeze something from under the gingiva; and that is really what happens. Some accumulations that are prone to lodge under the gums are by means of massage easily dislodged, and other deposits are largely prevented from forming.

In the estimation of the writer stiff tooth brushes are liable to do more harm than good, if used in such a way as to tear the gums

at each brushing; and some people devote considerable time and a lot of vigor in the operation. The effort is well intended and if only the enamel of the teeth caught the scouring perhaps no harm would be done; but every dentist has seen in pushed-away gums the evidence of too much and too vigorous brushing. Nearly all dentists now instruct patients about brushing teeth up and down in a way to not wound the gums.

And in speaking of the tooth brush, it is well to call attention to the fact that animal bristles are very hard things to keep clean and sterile. With all the effort one may reasonably use, the many times used tooth brush becomes a very unsanitary thing. However, as people cannot have a new brush every day, and yet as the old one cannot be boiled, it should have especial care in the cleaning of it in some other way. The use of peroxide in cleaning this article is to be commended; after which it may be rinsed in clean running water and then dried as thoroughly as may be. The frequent renewal of the tooth brush should be advocated.

This subject will be taken up again as occasion may determine.

(To be continued.)

SETTING AN INLAY.

In putting in an inlay, instead of putting direct pressure on it, I put it to its place and draw a wide piece of tape over the inlay, the same as though we were polishing a gold filling with polisher. I take a piece of tape a couple of times as wide as the filling, and as you pull it through it will always have some surface of the tape in contact with the filling. Pulling it through that way two or three times wipes off all this surface that prevents your seeing a real nice margin. At that stage some would put a wedge in. In putting a wedge in they would see a little of that squeeze out, and by putting more pressure on it they might get considerable out, but after you have gotten all out you can possibly get, if you take a piece of tape about one-sixteenth of an inch wide, and rub that over the filling, it does this: It keeps teetering that thing from one end to the other. Keep going over it, and you will be surprised how much closer the inlay will become seated than though you put on any amount of direct pressure.—*Dr. W. H. Taggart, Review.*

DENTAL PATHOLOGY.

BY GEO. W. COOK, B. S., D. D. S., CHICAGO, ILL.,
DEAN OF DENTAL DEPARTMENT, UNIVERSITY OF ILLINOIS; PROFESSOR
OF BACTERIOLOGY AND PATHOLOGY, UNIVERSITY OF ILLINOIS.

Up to this point we have called attention to certain facts that show bacterial protoplasmic structure belongs to the lowest forms of vegetable life, and when grown under certain physiological conditions it is possessed of a number of vital biological phenomena known to no other living thing. They are an unicellular organism endowed with all the peculiarities of life, the higher formed organisms are built up out of a number of cells, it matters not how high or how low the organization of life may be, the ultimate biological problems must in the last analysis be sought in the cell. It was in the study of the cell that Max Schultz and Virchow showed that all the various functions of the body in health and in disease was but the outward expression of the cells. It is then to the study of the cell, the evolutionist must look for the most useful information on his subject. Cell physiology belongs to bacteria and can be applied to these organisms very much in the same way as the multi-cellular organisms, while their functional activities are very analogous, still their structural arrangements are somewhat different. The cell of the higher organization all show a degree of differentiation. Animal cells and most all plant cells contain a rounded body called nucleus; it is only the lowest plant cells that appear to be devoid of this nucleus. The bacterial cell was at one time considered to be quite a simple plant cell composed of protoplasm and a membrane, and later they were looked upon as being a somewhat complex structure, but at the present time they are looked upon as being composed of a homogeneous protoplasmic mass containing a granular substance; these granules seem to partake of the same characteristic as the nucleus substance in the higher cell organization. Some investigators went so far as to claim that these granules possessed the same characteristic substance as did the chromative substance of the nucleus of the higher cell organization, because they took the stains in the same way, and especially was this true when the granules arranged themselves in a special way as is often seen in the chromatine threads of the nucleus division of the cell of the higher forms. Most all bacteria stain very

much as nucleic substance. The methods of bringing out the granular appearance in bacteria, is a process known as plasmolyzing, which consists of heating to about the point of the coagulation of albumin, or to take alcohol or a strong salt solution and immersing the bacteria therein. When they are treated in this way these granular substances appear to take a position as irregular masses, more or less adherent to the cell wall, and give somewhat the appearance of the polar granules in the multi-cellular organisms. Fisher, however, came to the conclusion that the peculiar staining of these granules in bacteria was due to the physical and not to the chemical condition as was at first thought, and, which is perhaps true in case of the higher cell organisms. It is then thought by some that these granules have something to do with the reproduction powers of bacteria, but this ground was probably not well taken. The study of the granules in bacteria leads one to think that possibly bacteria is not the lowest form of life, but as yet, we know of no smaller cell structure that is capable of performing all life functions, such, as taking in food stuff and the powers of reproduction. In the foregoing pages we briefly called attention to some of the characteristic forms of these micro-organisms; we also stated that there was a possibility of great variation and that a great many cells may be grouped in various ways so that it was not always easy to say that they belong to a particular specie, as in case of some of the bacilli forms we have an enlargement in the center of the rod, or one end may become swollen, making truly a club-shaped appearance. In some cases the bacilli may lengthen to twice its original length and divide in the center thus making two short bacilli. All these variations take place at various stages of development, while in other instances it may become constructed in the center, producing a typical dumb-bell shape. The variability of form does not exist so much as to make it impossible to separate bacterial life into genera and specie. In this connection it is necessary to again refer to the subject of spore formation; here will treat only two classes of spores found in the lowest forms of bacteria. The first one is that one known as "endospores"; they are small refracting bodies always found in the interior of the bacterial cell. In their process of forming it requires a special method of staining spores. It is possible to account for the enlargement in the center of the bacterial cell (this is endospores). The other process of sporilization is known as "arthrospores," and are formed at the end of the cell. Sometimes these

spores are taken for the polar granules, but a close study reveals the fact that the spores differ very materially from these polar granules that were spoken of as being found in the process of plasmolysis of the bacterial cell. These spores are of the greatest importance, for as has been said, they are by far the most resistant part of the bacterial cell. As for the most favorable condition of sporilization, first they must have an optimum temperature; what we mean by an optimum temperature is one that each individual bacterium grows best, as for instance, a germ that is truly a parasite, is one that lives best at the temperature of animal heat, while those that live in the soil would have a very much lower optimum temperature. As to the lowest point at which bacterial spores will form; this depends upon the individual bacterium, for a specie was found which was able to form spores when the water was covered with ice; this was the optimum temperature for this germ, a point naturally arises here. At what temperature is spore formation prevented? I shall here take the anthrax bacilli as it is always found most suitable for such investigation, in fact, this micro-organism is most always used for such purposes by all investigators, because the anthrax spores have as great, if not greater, resisting power than any other known. I shall here give the investigation of a number of observers; Pasteur found that when the anthrax bacilli was cultivated at a temperature between 42° and 43° C., spore-formation was completely arrested, while it took twenty days to render the bacilla non-virulent. Roux and Phisalix were the first to observe that the same could be accomplished with chemical agents such as the addition of carbolic acid; this phase of the subject will again be referred to. This brings up the question of sterilization in general. It is a well known fact that a temperature so low as to make it impossible for germs to develop will give practical sterilization; this is what is accomplished in refrigerating chambers; but the only sure way is the absolute destruction of the bacteria, and that can only be accomplished by heat, and, if used under pressure, it is much more effectual, for it is a well known fact, that it requires a temperature of not less than 120° C. at a pressure of one-half atmospheric pressure to produce this. Many of these methods are used in the process of rendering substances free from bacteria; this is accomplished in the canning process, such as canned fruits and meats; but to be effectual, this must be repeated daily for several days at not less than a half hour each sterilization; this is known as intermittent or

discontinuous sterilization. Many of the methods that are ordinarily used in sterilization can be applied to sterilizing milk for children "pasteurization." All bacteria do not have the same resisting power to heat, on this account it is possible to obtain pure cultures of such bacteria as the hay bacillus. We have, however, no good reason for the difference in the resisting power other than possibly its growth in different media. The chemical composition of the bacterial cell does not vary in quantitative or qualitative substance to any great extent, therefore, we can not say that this variation is traceable to the chemical composition. The work of E. Cramer shows that in the bacteria, such, for instance, as the bacillus prodigiosus and the bacillus of pneumonia, the change of the quantity of albumin in the bacterial cell depends to some extent upon the amount of peptones in the media in which they grow. It is well known that all protoplasm contains considerable water, and its irritability depends upon the metalions, such as sodium, calcium, magnesia, potassium, etc. Some bacteria contain starch, while others have in their body substance a true cellulose. In some micro-organic cells there is to be found a mucoid carbohydrate ($C_6 H_{10} O_5$). It has also been found that the culture media influenced the thickness of the cell membrane, which, without question, controls to a large extent the action of chemical agents used as disinfectants; these agents will be discussed later. Certain forms of carbohydrates are very useful in culture media; such well known synthetic compounds as the polysaccharides, starch, dextrine, cane sugar, maltose and milk sugar. Investigation by a number of investigators has shown that prussic acid ($H C H$) may arise through decomposition and act chemically on certain forms of carbohydrates, changing them into certain other forms of carbohydrates. Prussic acid is one of the well known nitrogenous poisons, but by the rearrangement of the atoms in the molecule, may become a non-poisonous substance; thus, becoming available as nutritive substances, out of which bacteria may build their body substance. The vital phenomena of bacteria are the result of their construction of body proteid out of lifeless substance; Scholl was able to make inactive proteid that had been heated to a temperature sufficient to render it lifeless. Formaldehyde is well known as an antiseptic, even when used in great dilution; but, if placed in combination with sodium sulphite ($Na_2 SO_3$), its poisonous properties are at once changed to a nutritive substance for bacteria. Pasteur found that like condition

existed in case of tartaric acid ($C_4 H_6 O_6$) and succinic acid ($C_4 H_6 O_4$). In fact, most all the organic acids can be utilized as food; an easy simple experiment is taking a mild solution of ammonia lactate and grow the bacillus of blue milk which will produce synthetically the same pigment as is produced by the same micro-organisms in milk. Many of the organic acids will act only as nutritive substance in the presence of oxygen, while such substances as belong to the aldehyde group ($C H O H$) are nutritive to those bacteria that grow as anaerobic. Under the culture media, I called attention to asparagin ($C_4 H_8 N_2 O_3$), this has been considered somewhat nearer proteid, than either the ammonia or the aldehyde group. According to the investigation of Low and Fischer, asparagin arises out of the decomposition of proteid (oxidation).

In the experiment of Schutzenberger on proteid, he found a chemical substance that was closely allied to succinic acid, this, Low called amido succinic acid; the chemical formula was written thus: ($C_5 H_7 NO_4$) or ($C H_2 COOH$) ($C H N H_2 COOH$).

In the former discussion of a certain formula we mentioned the possible re-arrangement of the atoms in the molecule, in this way bringing about new compounds. According to investigation asparagin is one of the most nutritive agents for bacterial growth and, owing to high molecular structure, various forms of bacteria are able to oxidize in a way to construct a highly chemical substance, such as pigment or poisonous agents (toxine). It is believed by some that this pigment formed by bacteria is intended to take the place of chlorophyl or leaf green in the higher plants; it is known that this coloring matter assimilates carbonic acid.

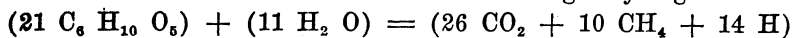
This is well illustrated in diatoms. One to go into a farther discussion on this subject would lead far into the subject of plant physiology, but there are some facts in connection with bacteria that is necessary to discuss in a deep way at this time. We have some of the higher forms of bacteria that possess a certain substance that is not truly a pigmentation, for instance, the crenothrix and leptothrix, ochracea, which seems to have the power of acting on certain ferrious compounds reducing ferrious carbonate to ferric hydroxide: ($2 FeCO_3 + 3 H_2 O + O = Fe_2 (OH)_3 + 2 CO_2$). The presence of iron in the sheaf of these bacterial cells may mean something to us as dentists, for we oftentimes hear considerable discussion of the iron in connection with discoloration of the teeth, but we can not say, how-

ever, as yet, if any of the bacteria of the mouth, may, or may not, contain some of this electrolytic element which is so necessary to the molecular structure of some forms of proteid substance. Right in this connection, it is well to call attention to another form of bacteria known as the sulphur bacteria (*begiatoa*). These are devoid of pigment in the true acceptation of the term, but the physical phenomena of these micro-organisms seem to be obtained through the oxidation of sulphuretted hydrogen. This sulphur compound might be further changed into a milder form of sulphuric acid. The active principle that is involved in the formation of sulphuretted hydrogen in most all instances is due to the breaking up of proteid substances or reducing of certain forms of sulphates. There are a great number of bacteria that seem to be possessed with a vital phenomena in this direction. We might take a process that most likely goes on in the depth and decomposition of the pulps of teeth in which discoloration takes place. We have sulphuretted hydrogen, formed in the process of decomposing molecule, and either from the iron in the blood or that which is carried there possibly by other bacteria, we have two essential elements necessary for bringing about the discoloration of tooth structure, namely, sulphur and iron. By the union of the sulphur with the iron salts, we get the formation of sulphide of iron. The vital activity of bacteria in such conditions as here spoken of is, beyond question, far greater than we have any definite knowledge of. There are some other very interesting physiological phenomena in connection with physiological activity of bacteria, that we will mention here; for instance, if cellulose be decomposed under water by bacteria, we not only have acetic acid, butyric acid, carbonic acid formed, but we also have a marsh gas formation (hydrocarbon compound).

Cellulose.

Water.

Marsh-gas hydrogen.



It is through some process of this kind that carbonic acid is formed in the mineral waters. It is a pretty well established fact, that the formation of coal in the earth and certain formations of rock, is due very largely to some active process of bacteria. The present acquaintance with bacteriology has added considerable to agriculture by the cultivating of plants, upon which bacteria grow with the plants. There are many instances in which micro-organisms have a kind of physiological co-operative growth, that is, one will take up a process

of decomposition to a certain point and another will take it up at this point and carry the process of decomposing the substance still farther; this is called metabiosis. There are many instances in which it requires two micro-organisms to accomplish one process; this is well illustrated in the case of manufacturing of kumyss out of mare's milk, the process of which is carried on by the action of a yeast fungi and branching form of bacteria. There is another instance in which a yeast and bacterium produce alcohol and lactic acid out of lactose. According to the investigations of Burri and Stutzer, two kinds of bacteria are engaged in the reduction of nitrates through nitrites to ammonia. The various physiological activities of bacteria are so varied, for instance, in one case there is found two different micro-organisms helping each other in the process of decomposing substance, whilst on the other hand, if a bacterium with certain functional activities get a hold no other kind of bacteria can come in; they will find it impossible to maintain life, as in the case of lactic acid fermentation, it would be impossible for a germ of putrefaction to live. Some of the putrefactive germs are especially fitted to break down the complex compounds, while others will work up the end products. Biologically, bacterial function is that of transforming inert organic compounds into inorganic substance; this takes place, as a rule, only after the vital activities of the protoplasm cease. As will be seen, however, there are a certain number that seem to have acquired the faculty of attacking living protoplasm. The processes of oxidation can properly be divided into two kinds, first, that when the organisms are capable of taking up their oxygen from the air; second, those whose physiological activities is such as to break up and rearrange the organic molecule, containing oxygen. Bacteria not only take up oxygen for their own body substance, but pass some on to the substance which they are liberating; this is what takes place in the conversion of nitrogenous elements into ammonia, nitrous and nitric acids. Bacteria not only have the power to build up their own complex body substance, but at that same time build up a complex substance; such as pigments or a highly chemical compound, such as the organic acid or some of the poisons.

(To be continued.)

ORIGINAL CONTRIBUTIONS

TOOTHsome TOPICS.

BY R. B. TULLER.

Wanted:

A good foundry man.

One familiar with casting inlays, without costing outlays—well, say, for outfit anyway. I want a man who knows where he's at.

Must be steady, ethical and reasonably respectable, and willing to work—but not me.

You see, taking Time by the forelock, I have, as a man of caste, changed my specialty; doing fine gold fillings, making plates, crowns and bridges, etc., in the new way instead of the old, and I'm casting about for help to do the casting.

Casting is about to revolutionize dentistry, and I want to be a revolutionist. I don't want to wait until all the others have revolted and got all the money and left me wearing my life out—if, indeed, I could get anything to do in the old way. I want to cast my lot in this cast inlay business some way, somehow.

I have decided to go into the dental foundry business—am in it—and I want a good man in the foundry—while I work the office end of it and collect the revenue. Send in your work at your own risk.

After investigating a considerable number of methods, I think best to begin in a modest way, and I am adopting aqueous vapor for my press and power work (because there is no patent on it), though my intention is to utilize all known processes—besides several of my own invention.

I have in mind, too, a near-idea that I want the services of an expert diamond setter and a highly artistic engraver; but one must creep before he walks. Still, I'm going some. Don't hold back orders, if you want diamond set and monogram inlays.

I have done some casting by the rule of thumb, but I burned my thumb and have concluded not to follow that process any further. My accident policy don't cover that kind of a burn.

One of my inventions—patented, of course—I call the merry-go-round, and, say, it's a tip-top idea. Well, no; not a *tip* top, but a good, heavy, steady one that will spin ten minutes if need be without tipping—the top, I mean—though the idea spins some, too.

My wax model is invested at one side of the flask, and the sprue runs at an angle up to the bottom of the pit or crucible which occupies the center—see?

Now, when my flask is heated up red, I set it in a recess in the center of the top, and just spin the top. Huh? Well, I guess.

What more but to turn the flame on my gold in the revolving crucible, and presently see it melt and zip into the mold? I don't know but I shall call it the gyroscopic method. Ask me. . .

I heard one man ask another the other day how he could inexpensively press his gold into the mold, and the answer was: "Well, *you* could just breathe on it and it would go; but it might shrink some from the contact." I think he was joshing, really. But maybe it was a strong point after all. You can try it.

The cast inlay is, by some, supposed to be a new invention, but you know that old story: "There is nothing new under the sun," and I am credibly informed that old Rameses (before he had paresis) had cast inlays in his teeth—or had inlays cast in his teeth. I'm not sure but it was that that gave him paresis—are you on?

But the latest discoveries show that old Rameses had a very peculiar and not altogether an ethical way of perpetuating his fame and grandeur; and that was by swiping the hard-earned, nailed-down and hewed-in records of some predecessor of fame and works, and substituting his own hieroglyphics in their place. If this is true, I don't love old Rameses as I used to.

We can't be sure but what he took the cast inlays out of the teeth of his predecessors and put them in his own; but that would only go to show that these things are not new.

Every modern thing in dentistry was practiced by the Ancients, and particularly by the Etruscans, who were the old-time experts in working gold. Casting was their favorite way of making things.

But, say, I think I have come pretty near to something new, and that is a near-new idea of a drop-forged inlay—patent applied for.

Oh, I've dropped inlays many a time, and so have you, and I've forged them, and you, too, out of scrap gold; but my machine, when

I get it perfected, will do both. It may drop money; I don't know. Hope I'll find it if it does.

I can't say just when the machine will be out, for it has many parts; but when I have it all completed it can knock out inlays by the cart-load.

Of course no one wants a cart-load of one shape and size; but two or three extra are nice to have on hand in case one comes out, and the patient eats it—or pawns it.

Now, there's one advantage in gold inlays; a fellow has always got something of intrinsic value about him. And yet the dum thing might stick. They always come out eating soup—not when you're in the soup.

But, say, let me tell you about another invention of mine. It is a *lock-pin inlay*—cast or uncast. All you have to do is to set the inlay and lock it in with a pin. The scheme is this: Bore a small hole through any convenient strong wall into the inlay, after setting, and then use a gold wire of same diameter, smeared with cement, and drive it into the hole clear into the inlay and cut it off flush with the tooth, and finish off with a disk—see? If you think this kind of an inlay is going to come out tell it to *me*.

Now, don't get gay and go to making lock-pin inlays without seeing me, for of course I have that patented, and all I want is \$1.00 royalty for each pin-lock. Six such inlays for \$5.00; 20 for \$15.00.

This is no tax on the dentist, for he should add the amount to the price of the inlays. (Note that taking 20 you make money, or get a rate of 75 cents each, and charge a dollar).

Now, this royalty does not go on, *necessarily*, through the life of the patent, for when you have paid me \$100.00, I will agree to send you a permit, free for the rest of your life, and you can still keep charging the patient. *This is a money-maker for you.* You soon get back your hundred, and the rest thereafter is all velvet.

Please remit the amount by P. O. or Exp. money order; and do it *now*, or P. D. Q. I am anxious to get a Taggart machine, an automobile and a string of pearls for my wife.

All diamond set inlays should be pin-locked, sure. And, by the way, if you have not the facilities for engraving and diamond setting, we shall be able to do all such fancy work, as well as the casting, in my foundry at fancy prices.

Send in your wax models, properly protected, at your risk. If a diamond setting is wanted, inclose a stamp with which to begin correspondence looking to negotiations for cash. The flash of diamonds always looks well with the flash of gold. They will look good to me if you flash your money with the order—or a handsome deposit, at least.

This is no joke.

P. S.—No paste diamonds will be monkeyed with.

APHONIA FOLLOWING ANESTHESIA.

A case of unusual occurrence has lately been reported to me, and which I think will be of interest to all dentists, because of peculiar circumstances connected with it. I am indebted to Dr. John A. Cavanaugh, 72 Madison street, a specialist on ear, nose and throat, for my information.

Name—Miss J. G., Chicago, Ill.

Age—Twenty-nine years. Occupation—Bookkeeper.

She was referred to a well known dentist in the down-town district to have three teeth extracted. On Thursday, August 29th, she called at the dentist's office to have this work done. She was put to sleep with nitrous oxide by dentist. When she awoke she was nervous, excited and somewhat hysterical, and she says she did not recover from the shock for a number of days. On the following Sunday she lost her voice and could not speak above a whisper. She consulted her physician, a well recognized man on the North Side, who said the loss of her voice was due to an overdose of the anesthetic. She treated with this physician for ten days or so without any improvement. She was then advised to consult a specialist and called upon Doctor Cavanaugh for the purpose of getting proof that the over dose of anesthetic was the cause of her aphonia; if such was the case, she wished to recover damages. Doctor Cavanaugh assured her that the anesthetic had nothing to do with her condition, but there were other things present which were the probable causes.

I mention this case to show what condition might follow anesthesia and yet have no bearing on the anesthetic whatsoever.

C. M. PADEN, M. D., D. D. S.

ABSTRACTS AND SELECTIONS.

SELECTED PAPERS.

Limitations of Dental Education.

BY G. V. BLACK, M. D., D. D. S., SC. S., LL. D., CHICAGO.

It is a self-evident proposition that such an education in dentistry as will fit a suitable number of young men to serve the people in the best possible manner, will be the best that can be given. Too rigorous a requirement will limit the number so that there will be too few to serve the people; too lax a course will fill the profession with incompetent men. Therefore the best education we can rightly require is not the highest degree of education the primary liberal arts and professional schools might give.

There are many influences acting to limit the education that may be given. These are closely akin to those which limit the education of the general public. It is desirable that education for either a business or professional career be such as our modern college of liberal arts give, supplemented by a business or professional training. It must be clear that in the present organization of society, such a course of study for everyone becomes impracticable and would so limit the number entering the dental profession that there would be too few to properly serve the people. Such an education requires that the first sixteen to twenty years following the sixth year, or school age, shall be devoted to school work, and the business or professional training obtained later. If this latter demands three or four more years, the person will be twenty-four to thirty years old before he is ready to enter upon his work. While it is desirable and we may expect that a considerable number of young men will obtain this education in the shorter time mentioned and enter the ranks of dentistry thus equipped it is clear that we cannot at the present time, or at any time within the near future, demand this as the minimum limit. At present the

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earning power of the average individual is insufficient to enable him to spend this proportion of his life in educational preparation. Further, advance in age tends to bring fixity of notions for most men and on the average those who enter the professions early in life gain a better discrimination of conditions and a higher degree of finger skill when that is demanded, as is eminently the case in dentistry. This is an additional reason why men should become dentists as early in life as a reasonable education will allow.

We as a profession serve the people in relieving such of their distresses and ills as occur from diseases of the teeth and associated parts, and as such are a part of the medical profession. For our purposes we may consider the education necessary to those who follow the law, politics, divinity, medicine, dentistry, civil engineering, etc., as among these we find the orders of lifework that, aside from the questions of food, clothing and the more ordinary forms of shelter, mean most to the welfare of men and the progress of civilization. These and some other callings that are very nearly associated with them, constitute what may be termed the professions. The persons who enter upon these as their life work are supposed to devote themselves to the welfare of man and to the communities in which they live. If some serve the state or nation instead, it in no wise changes the obligation to serve in the interest of humanity and the advance of those phases of science on which civilization is founded. In this the professional man is different from the laborer or tradesman. In the trades, manufactures or building, the business is in the use of capital or finance in buying and selling, or the exchange of commodities, and the man uses his mental endowment, quickened with his educational preparation together with his capital, in the exchange of goods among men that each may obtain that which his needs or his tastes may demand. In this the goods are the subject of sale and purchase. The professional man sells no goods. In general terms his equipment is his mental endowment supplemented by his training, which has become an integral part of himself. That he cannot sell, but it enables him to labor for the benefit of man.

A man in difficulty with his neighbor over a question of property, may choose his attorney, but is not in position to determine the value of the attorney's advice, nor choose what it shall be. He cannot buy of his attorney. He may accept the service and pay the fee, but the attorney determines the character of the service. The sick man or his

friends may choose a physician, but the physician must determine step by step what the treatment must be during the progress of the case. While he is by usage entitled to his fee, there is no question of barter in the service rendered. His obligation is to use his full energy and best judgment for the benefit of his patient independent of any other consideration. So also the dentist ministers to the ills of man in his legitimate field. The object of his special education is to fit him for determining that which will most certainly give freedom from suffering and best fit his patient for future usefulness. The patient can no more determine what this may be than the man who is sick with fever can determine the medication suited to his case. He must depend upon his dentist. The professional man doesn't advertise or sell; he serves; he uses his mental endowment and special training to relieve the difficulties and distresses of men, and for the benefit of society or of the state.

If we can admit that there are differences in the degree of moral obligation among men, the moral obligation of the professional man must be greater than that which rests upon any other, for those whom he serves are dependent upon his moral integrity and his skill to a degree that is greater than the obligation of any other. His obligation to obtain the best practicable primary and professional education is in the same ratio.

Just as the medical professional becomes proficient in its service, the intelligent public comes to depend upon its members for that service and make use of their training and judgment. As it is in the medical profession, so it is in all others. As the civil engineers as a profession become proficient in their calling, those who have large engineering works come to depend upon them for advice and plans of building. As dentists become proficient in their calling and are enabled to enforce their opinions by the results of operations, the people come to depend upon them and make use of the service they can give.

This brings us to another proposition. In order for the service of the skilled professional man to become available to the people, the people themselves must have that degree of education in the use of that service which will enable them to employ it efficiently. This may be said also to include in a lesser degree, the financial means of its employment. The early settlers in this country were not in position to employ the highest skill of the architect for the planning of the buildings they needed; a much lower degree of skill which they found

among those not especially trained served their purpose, and in the main served it well. As another illustration we may take electrical engineers, a class of professional men who have sprung into existence within the memory of most men of middle age. They may devise electrical apparatus for the use of the people that is good and well calculated to do the work designed, but before it will become available for extended use the people must learn the conditions of its use and the results to be accomplished. In other words, the professional man cannot make use of the higher degree of training without a corresponding advancement among the people whom he serves. It is not necessary that the people all become electrical engineers in order to use electrical instruments and derive the benefits of their use, but the conditions of use must be learned. The highly trained physician who is placed in a community of persons who do not know the benefits to be derived from his employment, will be unable to give them that service which he could give to a more intelligent community, either directly in the curing of their ills, or in protecting them from unsanitary conditions. In most instances the professional man needs, to enable him to do the best service, that the intelligence of the community shall support and supplement his efforts. So it is in dentistry; we as a profession cannot do that which should be done for a people who do not know of the benefits to be derived, and who are unable to do their part in making use of the treatment that we may give them. The efforts of the dentist also must be supplemented by the intelligence of the community which he serves.

In the professions it seems useless to place the minimum degree of education higher than the intelligence of the people as a whole will support by a sentiment that will cause a sufficient number of young men to enter into the work. A higher degree of education may serve in the development of science, but cannot render the immediate service to the people that is designed. The state demands that the service to the people be a reasonably good service. The state does not demand the highest efficiency that may be obtained by a liberal education, but a service that will be reasonably safe, and demands a certain minimum education before it will license practitioners. This is done for the safety of the community, protecting individuals who cannot protect themselves. This is done also under the theory that all are entitled to a degree of service that is sufficient to render them useful citizens

and give them that reasonable protection against their ills which professional service can render. It often happens that a degree of service less efficient than that which will be demanded by the most highly educated community will be very much better than no service.

A condition has arisen in England in which this is sharply illustrated. A number of years ago the British Dental Association went before the House of Commons with a bill to regulate the practice of dentistry, which became a law. This law was supposed to prohibit any one practicing who had not passed through a prescribed curriculum of study and had been licensed regularly for practice. When supposed violators of this law were brought before the courts, the decision was that the wording of the bill prohibited persons from announcing themselves as dentists or dental surgeons, or words to that effect in any printed matter, signs, bills, door-plates, etc., but that the law did not prohibit the act of practice. Therefore, any one can practice dentistry in England provided he does not use this means of announcing himself, and many are so practicing. Under these conditions the British Dental Association, by its committee, recently appeared before the House of Commons again, asking that a new bill be passed which would prohibit the act of practice. The committee of the House of Commons to which this bill was referred, entered into an exhaustive study of the subject, called witnesses and took testimony as to the effectiveness of the dental schools in England and the needs of the English people, and the conclusion was that entry into the dental profession through the schools had been made so difficult by the length of time and the fees demanded, that the schools were not qualifying a sufficient number of men to serve the needs of the people, and therefore sharply refused to interfere further until this could be done. The grounds for this decision were that if the people could not have a highly efficient service, they must be permitted to employ a less efficient service, as being better than none. The requirement for the L. D. S. in England was a primary education about equal to that given by our high school, and four years' training in dentistry, with fees that on the whole ranged very much greater than those in this country. The dental schools in England have dropped from the four year course to a three year course in consequence of this decision, with a corresponding diminution in fees. We have had nothing of this kind in this country, and with our present progress we seem in

no such danger, but if we should ever render the entry into our profession so difficult as to seriously reduce the number of practitioners, our legislators would speedily remedy the matter. We ought to be able to maintain a higher grade of dental education than England for the reason that a very much larger percentage of our people make intelligent use of dentistry and give us stronger support.

In order for the usefulness of dentistry to be fully received by the people, they must become intelligent in the conditions of its use. The development of the ability to impart this is an essential part of dental education. This must be taught by the dental profession and placed before the people by each individual in his daily practice. Its first element is confidence in the benefits to be obtained. Coupled with this there must grow up in the public mind an appreciation of the conditions under which efficient dental service can be rendered and the necessity of submission to these conditions in order that the benefits may be derived; and finally, a range of observation by many people of the results of dental operations which will give a fair judgment as to what may reasonably be expected. This will develop a power of discrimination that on the whole will give a judgment between success and failure of individual operators in giving this service that will have in it that element of correctness that will act as a spur to excellence in the body of the profession, and the weeding out of careless or incompetent men. In this it is not in any wise expected that the public will become dentists any more than it was expected that all the people would become electrical engineers. This is to be taught almost entirely by practitioners in their daily intercourse with patients in their offices, and through them diffused to the general public.

Pretty careful observations through many years convince me that little can be done in this direction by public prints which are supposed to give the people information regarding dentistry and the care of their teeth. In this matter, however, we as Americans seem to have done better than the dentists of any other country, if I may trust my own observations abroad. There is a larger proportion of American people who make use of dentistry with a fair degree of intelligence, than any other. In some investigations of this made a few years ago I found at that time the use of dentistry by the American people had more than doubled within ten years, and I am satisfied this rate of increase is continuing and ten years from now it will require many

more dentists to do the work required by our people than we have now in practice.

The different states of our common country have passed laws regulating the practice of dentistry. Laws something similar to these are now in force in every civilized country on the globe, so far as known. These have in every instance been in the main such as have been recommended by the dentists of the individual states. The first laws were timidly drawn and even more timidly enforced by the boards appointed to administer them. These have been replaced by new and improved laws so that in the large majority of states the boards appointed have authority sufficient for a fairly rigorous regulation of dental education and practice. Especially it is their duty to see to it that every person entering practice exhibits the ability to give to give reasonably effective service. Most of these state boards have the right under the laws to determine the education, both primary and professional, of persons entering the practice of dentistry, so long as the requirements are reasonable. They have also generally the right under the laws to examine the work of dental schools and to judge them as to their reputability, basing this upon compliance with reasonable rules and regulations. Therefore the schools are to that extent under state control. This is done that the people may be assured of reasonable proficiency in those licensed to practice. Practically the dental profession controls the provisions of the laws that have been passed and should control those that may be passed in the future, for it is their business to study the needs of the people. In the same way attorneys control the rules and regulations governing the practice of law, and medical men control the formation of laws governing the practice of medicine, etc. This is done by advice to legislators. Generally these act in the capacity of societies or associations through committees which advise with legislators as to what laws will serve the people best.

This being true, every dentist is interested in these laws and should study these questions with the greatest care in order that he may influence them favorably. This is a necessary part of his professional duty as much as to properly care for the cases which present in his office, for he can often serve the people better by his efforts in this direction than in any other. While it is true that the governors in most of the states appoint the boards who administer these laws, it

is also true that most governors will listen to and be in a degree controlled by the wishes of the professions in the personnel of the appointments, when the necessities are wisely and judiciously presented. Every man in reputable practice should be ready to advise and assist, in connection with his association, in this work, and therefore should become as intelligent as possible as to the conditions and necessities in the formation of laws regulating dental education and practice, to the end that the people may have the greatest benefit possible, and his profession as a whole derive the greatest honor.

In the past the faculties of the dental schools have had their association, and the members of the examining boards have had theirs. These two associations have usually met at the same time and place, but separately, and with occasional differences of opinion, harmonized by joint committees, have done most excellent work and dental education has prospered under their joint influence. However, the National Association of Dental Faculties has always been a turbulent body because there have been, as it seemed to me, so many conflicting interests to be conserved. Fifty or more dental schools have been banded together in one body and have been endeavoring to form rules under which all could work. These schools have been differently organized; some are departments of great universities that are able to tide them over a temporary shortage of funds; some are departments of state universities which may receive state aid; many of them are the property of individuals or stock companies which are dependent upon their incomes from year to year for their existence, while a number are actually supported by the liberality of the professors in charge.

Under these conditions a shortage of students that will diminish the income will affect some schools more seriously than others. Yet I believe there has been much honest effort by all concerned to do the best things for the general promotion and improvement of dental education. Under the influence of these two bodies, the educational requirements for entry into the dental schools were advanced from practically no inquiry in 1884, to the minimum of two years of high school in 1901, and from a rather uncertain course of two years of about five months each in 1884, to the minimum of three years of seven months each in 1901. During this period dental schools enjoyed very remarkable prosperity. The number of schools increased from eighteen in 1884 to fifty-four in 1901, when a further advance to a course of four years was voted almost unanimously by the Faculties Association. Per-

sonally I did not favor this form of advance, preferring two more years of high school, but it was so evident that it was the choice of a large majority, that I voted with the rest. It had already become apparent to some of us that there was coming a time of diminished attendance in dental schools. The country was in the enjoyment of unparalleled prosperity. There was and has continued to be profitable employment for energetic young men. Wages have been higher than ever known before. Under these circumstances a fewer number will turn aside and spend three or four years and pay the fees to acquire a professional education. Under these conditions the four years' course became a stumbling block in the National Association of Dental Faculties. The first matriculation period for the four years' course showed a great reduction in numbers of freshmen students, and many of the schools took alarm and clamored for the rescinding of the order for the four years' course. After a stormy session adjournment was had with only the barest majority for the continuance of the four years' course. Clearly this was too small to constitute a safe working margin. Shortly afterward a special meeting was called, which rescinded the four years' course, returning to the former three years' course of seven months. While there was great dissatisfaction over this matter, I am of the opinion that the general intention of every member was good. While personally I worked with all my might for the maintenance of the four years' course, each of those opposed to me was probably just as honest in his view.

If we now examine the work of the dental schools in the graduation of students for the twenty-two years since the organization of the National Association of Dental Faculties in 1884, we find that something over thirty-three thousand young men have been graduated. The actual official reports that I now have give 32,701. If I fill the blank years (those of which I have not yet the reports) by an estimate based on the average of the two preceding and two succeeding years, it gives 33,528 as the total.

TABLE BY YEARS OF GRADUATES IN DENTISTRY FROM 1884 TO 1906.

YEARS.	GRADUATES.
1884.....	421
1885.....	503
1886.....	497
1887.....	620

1888.....	758	11,302.	
1889.....	802		Average per year, 869 for the
1890.....	983		first thirteen years.
1891.....	1,242		
1892.....	1,474		
1893.....	415		
1894.....	902		
1895.....	1,278		
1896.....	1,407		
1897.....	1,683	21,401.	
1898.....	1,960		Average per year 869 for the
1899.....	2,168		last ten years.
1900.....	2,149		
1901.....	2,370		
1902.....	2,261		
1903.....	2,285		
1904.....	2,291		
1905.....	2,711		
1906.....	1,523	32,703	Total reported.
	Add estimate.	879	for years not
	reported.	33,582	Estimated total.

This is certainly not far from the actual number. Of these a few have gone to other countries so that the best estimate I can now make is 33,000. But these figures do not fully represent the facts. During all of the first half of this twenty-two years a large number of dentists entered practice without attending dental school. At first the boards examined all applicants, but gradually men found that the easiest way to become able to pass the examining boards was through the dental schools. Within the last ten years practically all have passed through the schools. During this ten years the graduates of which I have record have averaged 2,140 per year. As forty years is the average expectation of life of persons of twenty-one to twenty-six years old, this number annually would maintain a force of 85,600 dentists.

Of the dentists now in practice in the United States and Canada we have not very exact data. Polk's Dental Directory is probably the best available. This for 1906 contains 35,274 names. But no such book contains all. If we add to this ten per cent to cover omissions we will have 38,801 as the total number.

The expectation of life of men entering dental practice, assuming that the ages will average twenty-one to twenty-six, is forty years. Assuming that all of the men actually spent their life in practice, the graduation of 970 men per year would keep up the number. But many men, how many we do not know accurately, drop into other employments. If we assume that twenty per cent are lost to dentistry in this way and another ten per cent is necessary to provide for the increased number of dentists required, it would require 1,333 additional men annually to provide the necessary number. Or even upon the supposition that those going into other employments were thirty per cent, and necessary to provide for the increased demand were twenty per cent, 1,663 graduations per year would be necessary. From this it would seem that the number being graduated is very excessive. And yet if we look carefully about us we find that the development of the use of dentistry by our people is so rapid that there is no notable excess of dentists. Those in practice today seem to be doing fully as well as those of ten years ago.

Some of our graduates fail for various reasons to enter into practice, and many, perhaps of the less competent, drop out after a few years. Those of us who have been endeavoring to keep in touch with our graduates have some appreciation of this and yet it would be difficult to make a satisfactory estimate for the whole country. It is sufficiently certain, however, that there is no immediate danger of a shortage of dentists to serve our people, even though the number of graduates should be somewhat reduced for a few years. Under these circumstances the state boards seem to be fully justified in demanding a better educational qualification of students entering the dental schools, and further improvement in their professional training as well.

Under the conditions existing when the Faculties Association rescinded the four years' course and returned to the three years' course of seven months, continuing the requirement of two years of high school for entrance, the National Association of Dental Examiners refused to accept their decision.

After a careful study of the conditions (which I have herein more fully given) they advised their constituent state boards to require of the dental schools a course of three years of nine months each, or an equivalent in the form of thirty-two weeks of teaching, excluding holidays and including Saturdays. With this additional time the require-

ment as to primary education was advanced from two years of high school to graduation from an accepted high school, or its equivalent education to be determined by examination by the state superintendent of public instruction or equivalent officer or his deputy. This was accepted by the state boards and the schools were asked to comply with this requirement independently of their membership in the National Association of Dental Faculties. Within a short time after the announcement of this decision of the state examiners their proposition was formally accepted by a majority of the dental schools, but has been sharply resisted by a considerable minority. It is desirable that all of the dental schools accept these conditions as a permanent settlement of the controversies that have marred the progress of dental school work for several years past.

With these most disturbing subjects of contention transferred to the state boards, settled and out of the way, there is most important work remaining before the National Association of Dental Faculties in the improvement of the curriculum and associated educational matters that should absorb its time and energy in the years to come. These difficulties and disagreements have been a large factor in the influences that have diminished the matriculation in dental schools for the last few years. In the unsettled conditions that have prevailed, young men desiring to enter dental schools have not known what to expect or what would be required of them. Sometimes they have been uncertain whether or not they could be examined and licensed to practice by the state boards if they graduated from the dental school of their choice, and in the maze of disagreement and unsettled condition of affairs in dental education, have turned to other lines of employment.

It is high time that for the general good of our people and of the dental profession, these difficulties should be ended and settled in a way that will give permanence for years to come. Personally, I am fully convinced that the plans of the examining boards which have been given and have been accepted by a majority of the dental schools should be fully accepted by all as the law of minimum requirements. With this should go the understanding by all that this minimum requirement shall not again be disturbed for many years to come, with a sentiment within the dental profession as a whole that will as rapidly as practicable enforce it in all of the state laws and in all dental schools.

The members of the faculties of dental schools are, by a sentiment existing in the dental profession, prohibited from becoming members of dental examining boards while engaged in school work. Members of the examining boards have none of the perplexities that arise by reason of personal interest in the success of a particular school. They are free from that embarrassment to their judgment in dealing with these questions, and, other things being equal, are more likely to arrive at just conclusions and permanence in their requirements.

There is and should be nothing in this minimum requirement that will prevent individual schools on their own initiative from adopting a higher standard whenever they may see the way clear to do so, but this in no case should become a state requirement. It is quite true that this requirement of students will not fit them for practice as efficiently as many of us could wish or as may be required by many communities. For this we must depend upon those who of their own notion will come to us with a higher education to begin their professional work and the personal initiative and further study of the more industrious men after leaving school. Of these we may reasonably expect a much larger number in the future than we have had in the past. The professional sentiment, and in many communities the popular sentiment, will require this, but it need not become a matter of law in order that we may have that reasonably efficient service that will be sufficient to protect our people. Indeed, it is not the function of the professional school to give its students the highest order of efficiency, but rather to give them such a basis for future study that this, combined with their experience in practice, will round out the fully developed efficiency of the higher order.

In conclusion I want to appeal to every practitioner to study this whole matter of the limitations of dental education with great care to the end that you shall not expect the impossible of dental schools. Remember that dental schools have no power to control the acts of their students after they go out into practice. It often occurs that a student whose conduct in school has been exemplary, who has made a good record, disobeys every precept of ethics and morality he has been taught, after leaving school. Though the school may be thoroughly disgusted with such a result, it can do nothing but regret that it has not the power to make men honest.

Remember also that the dental school cannot make all of its graduates efficient practitioners, nor can any state board sift out all incompetent men, or men who may rapidly become incompetent through careless or immoral habits. A student may, under the influences thrown around him in school, do fair work in his studies and in his operations, and after the last cramming for the state board examinations he may throw aside his books, fall into careless habits in operating, and within a few years become a thoroughly incompetent man. I have known such students to sell all of their books to a second-hand dealer the next week after passing their examinations. I wish to heaven they would sell their instruments also and seek other employment. The professional man has no right to be other than a continuous student. Therefore, until we can have laws by which the licenses of such men can be rescinded, we may expect some men will be dishonest and others careless, no matter how well the dental schools and the examining boards may do their work.

I appeal to you also to study the limitations of education that by your advice and good council this education may be kept within reasonable bounds; also that it may be made sufficiently rigorous to render the highest degree of service to the people possible, but with a watchfulness that the proper lines of limitation be not overstepped.

As professional men we should work together for the benefit of all our people and so manage our dental education as to secure this end. If we work together with zeal and skill to that end, our profession will win high honors in the future.—*Dental Review*.

CEMENT FOR MATRIX MOLDS.

Use of cement for swadging gold inlay matrices. Secure impression of cavity by using dentalac or modeling compound. Fill this with a stiff cement and let it harden. Insert the cement model thus made in a suitable hand swager and stamp and swage pure gold plate about 36 gauge with soft unvulcanized rubber. Transfer to tooth, and re-burnish if it should not fit accurately. It is then ready to be filled with gold solder to proper contour. If platinum matrix has been used pure gold solder may be employed. If 22 karat gold matrix is used, a solder that will flow into it without melting the matrix can be used.—*Dr. E. C. Sherman, Register*.

THE TEETH IN RELATION TO EAR AND THROAT DISEASES.

BY C. P. GRAYSON, M. D., PHILADELPHIA.

At the very beginning of my paper I regret that my conscience compels me to make a rather mortifying confession, which is that I have much reason for believing that the members of my profession, and even of my own specialty, are not nearly so generally alive to the intimate relationship existing between the diseases of the nose, throat and ear, and those of the teeth, as are the members of yours. It is, for instance, not at all an infrequent occurrence in my work to have patients sent to me by some of the Philadelphia dentists who realize that in order to obtain a successful result from some prosthetic or other measure that they contemplate, an essential preliminary will be the removal of a mass of adenoids from the patient's naso-pharynx, or perhaps of a pair of enlarged faucial tonsils or a marked deflection of the septum that may be seriously interfering with nasal respiration, and consequently with the normal development of the dental arch.

And in the same way it has been brought to my notice that many of you dental surgeons are quick to recognize that certain of the nutritional disturbances affecting the teeth are dependent upon chronic digestive impairment that is attributable to some catarrhal affection of the nose and throat. And yet how often do I meet with cases of chronic lacunar tonsillitis, or of persistent pharyngeal and laryngeal catarrhal inflammations, that have resisted treatment for months simply because the throat specialist has entirely overlooked or has failed to sufficiently appreciate the etiological influence of a depraved dental condition, and has neglected to call upon you for advice and assistance! It is scarcely to be supposed that any rhino-laryngologist fails to recognize that the nose represents, both anatomically and physiologically, the threshold of the respiratory tract, but is there any less reason for his clear perception of the fact that it is the teeth that bear precisely the same relation to the digestive tract? Probably no one would dispute the assertion that it is impossible to have a perfectly healthy throat and lower air-passages in association with an unhealthy nose;

Read before the Southern Dental Society of New Jersey, April 17, 1907.

and yet, I repeat, there seems to be a surprisingly large number of physicians who see no incompatibility between diseased teeth and a normal digestive tract below them.

Of course it is my privilege to speak only of those portions of the digestive tract with which my special work makes me the most familiar—the mouth, the fauces, and the pharynx; but in my writings and lectures for almost the past score of years I have never neglected the opportunity to emphasize the importance of gastro-intestinal sanitation as an aid to the successful treatment of nose, throat, and ear diseases. There is never a class that graduates from the medical department of the University of Pennsylvania without having been repeatedly told that the very first thing to examine when a patient presents himself for the relief of some nasal or throat trouble is the condition of the teeth.

PHYSIOLOGICAL ANALOGY BETWEEN THE NOSE AND THE TEETH.

The physiological analogy between the nose and the teeth is a most striking one. It is the nose alone that by filtering, warming, and moistening the air, prepares it for its subsequent reception by the bronchial tubes and the pulmonary cells; and it is just as exclusively to the teeth that the processes of digestion and assimilation look for the thorough and essential preparation of the food materials that they are subsequently to work upon. It will surely be perfectly apparent that the analogy between these two structures extends likewise into the domain of pathology, for if they are diseased to any material extent the ultimate implication of the lower portions of the tracts of which they represent the beginnings will be inevitable. If they are diseased the respiratory and nutritive streams are both poisoned at their respective sources, and all the remote and later effects of this poisoning will prove irremediable until these primary foci of disease are restored to health.

So much for considerations of a general nature, and now, with a closeness of their relation thoroughly appreciated, it will not be difficult to compile a list of those diseases of the nose, throat, and ear that are etiologically dependent upon dental disease.

PATHOGENIC CONNECTION BETWEEN THE TEETH AND THE MIDDLE EAR.

To begin with the ear, the frequency of acute median otitis in association with the dentition of childhood is a well-known occurrence,

and the conveyance of the irritation from the gums to the middle ear is easily explained by the intercommunication of the nerve supply of the two structures. May I recall to your memories the communication of the greater superficial petrosal nerve with the tympanic plexus, and by means of the Vidian nerve with Meckel's ganglion, which is associated with the superior maxillary nerve, from which the supply of the upper teeth is derived. The small superficial petrosal nerve is also in connection with the tympanic plexus and joins the otic ganglion, and in this way communicates with the inferior maxillary nerve and its inferior dental branch to the lower teeth. The pathogenic connection between the teeth and the middle ear is by no means demonstrated only in children; in adults I have failed a number of times to make much impression upon chronic purulent inflammations of the tympanum until I had secured through the co-operation of the dentist the removal of a persistent reflex irritation of dental origin.

In passing from the ear to the throat, I would like to stop for a moment or two at the nose and exchange ideas with you concerning the inflammations of the largest and most frequently affected of its accessory cavities—the maxillary sinus. Here we are on common ground, for the diagnosis and treatment of disease in this cavity are as much a part of your work as that of the rhinologist. To be perfectly frank, I must confess that with reference to the comparative frequency of etiologic activity on the part of the teeth and of intranasal disease in the production of the antral inflammations, I have been during the past twelve or fifteen years more or less of a shuttlecock. My first opinion was that the teeth were the more often responsible for the antral involvement, but during several added years of experience I accumulated sufficient reason, I thought, for changing my views, and gradually came to believe that it was to infection or to simple extension of the inflammation from the nasal fossæ that the larger number of antral inflammations were due; and then, once more, after an unusually long and almost unbroken series of cases that were of unmistakably dental origin, I drifted back to my first opinion. Now, however, with a little further shifting of my ground, I think that I am finally anchored, and I should say that if we exclude the many cases of maxillary sinusitis that are secondary to the infective rhinitis of influenza and grippe, the majority of all the others are traceable to the teeth. Possibly you may tell me a few things to-

night that may compel me to modify even this opinion, but I think it is a pretty conservative one now, and that it will not need much alteration.

THROAT DISEASES AND NEGLECT OF THE TEETH.

And now, to descend to the faucial region and the throat, I am perfectly confident that many obstinate cases of chronic lacunar tonsillitis have arisen from and have continued because of neglect of the teeth, and I am equally sure that in the production of a large number of acute infective inflammations of the tonsils, pyorrhea alveolaris and dental caries have played an active part. Am I wrong in thinking that there could scarcely be a more fertile and nutritious soil for the breeding of pathogenic organisms than that found in the cavity of a carious tooth? And when such cavities become over-populated it is but a short journey to the crypts of the tonsils, which soon become the sites of new and thriving bacterial colonies.

Finally, I think that I am justified in believing that even chronic laryngeal catarrhs may be maintained, if not originated, by such diseases of the teeth and gums as I have mentioned. There is no occasion and there would be no excuse for my wearying you with the details of a number of cases in evidence of this, but I need only to say in support of my belief that in spite of the re-establishment of the health of the nose and naso-pharynx, these laryngeal catarrhs will all prove refractory until the teeth and the alveolar tissues are put in equally good condition.—*Cosmos*.

GOLD INLAYS: AN ORIGINAL METHOD.

BY DAYTON DUNBAR CAMPBELL, D. D. S. OZARK, MO.

This inlay takes the place of the large contour gold filling we are wont to put in the anterior teeth. It requires about half the time. The rubber dam need not be used, and, unlike the gold filling we spend hours to put in, cannot possibly be bitten out. There is no danger of pitting or peeling, and the inlay is susceptible of a much higher polish.

Prepare the tooth as you would for a large gold filling, by removing the pulp and filling the canal. Prepare the cavity without under cuts, leaving it saucer-shaped, concave labio-lingually. This gives direct access to the root canal. With a plug-finishing bur and Arkansas stone leave the margins sharp. By drilling in a piece of wood find

the diagonal of the square post to be used. Use a square post, because its four points of contact will assist you very materially in holding the base of the matrix while burnishing.

Now roughly burnish a piece of 40-gauge platinum plate to the floor and wall of the cavity (if it may be said to have walls), insert the pin, remove and tack with pure gold. Replace and burnish again to get the outline of the margins. Cut away the bulk of the surplus, burnish again and if the platinum has a tendency to spring up at the cutting edge, flow pure gold over the inner surface, then with a suitable gold plugger mallet every portion of the base to contact. Cut off the platinum pin you have been using to handle the work with and trim away the surplus plate flush with the margins.

On this base make and contour the gold filling, so to speak, out of wax or Parr's flux exactly as you want it to be when finished. Keep the wax flush with the margins of the tooth. Now cut a piece of inlay platinum foil large enough to wrap around the wax, smoothly covering the labial surface; bring the foil down over the cutting edge. Get the mesial or distal contour and leave the remaining lingual surface open. With a hot instrument touch the foil gently. This will cause it to stick so that it may be handled. Remove and paint the pin and platinum plate with whiting or rouge to prevent the gold from flowing where it is not wanted, and invest. Pick, melt or wash out the wax and solder with pure gold.

Old gold fillings may be utilized, but should be melted into globules first. The labial surface may be pure gold and the remainder any karat your scraps afford. Again, the cutting edge can be made 22-karat and the remainder of pure gold. Almost any color and degree of hardness may be obtained. After soldering, cool in water and cement in place. When the cement is sufficiently hard, finish as you would a gold filling. The platinum foil is removed with the first strip.

One would naturally think that the platinum plate along the margin would show, but it does not, owing to its becoming so thoroughly impregnated with the gold under the blow pipe.—*Dental Brief.*

HYPODERMIC NEEDLES.

Hypodermic needles will get dull. Put the wire through the length, and grind the needle, and wire together. The wire can be withdrawn, carrying any bur with it that could clog the needle.—*Dr. F. B. Spooner, Summary.*

THE EXTRACTION OF TEETH: SOME OF ITS INDICATIONS.

HARVEY E. HARRISON, M. D., D. D. S.

To save teeth is the chief function and highest aid of the twentieth century dentist. A few extremists of the dental profession claim that they are able to save *all* teeth. We find the prototypes of these individuals in the medical profession in physicians who claim that they never lose a patient. The number of cases treated would no doubt play an important role in determining the merits of these claims, because they are so antagonistic to the basic principles of histology, physiology and kindred branches that to make such assertions would admit a deficient knowledge of the sciences which have rescued dentistry from the hand of the barber and placed it among the learned professions.

It is not the purpose of this article to defend odontocide, but rather to show that extracting has its proper place in dentistry, and that the skillful and judicious employment of it will be of inestimable value to those who require such operations. To the majority of general practitioners this particular phase of dentistry is repellent and is referred to the specialist, for the reason that the nerve-racking business of extracting teeth is not compatible with the delicate operations he is required to do. The advantages derived by his patients are twofold. They reap the benefit of his conserved nervous energy and have the services of one supposedly skilled in and adapted for that work.

When the dentist has frequent supervision of his patients and can inspect their mouths at stated intervals, fortified by their hearty co-operation, it is then, and not until then, that the extraction of teeth be reduced to a minimum. Even under these ideal conditions circumstances may arise which will nullify his most careful work. The requisite amount of force exerted upon a root carrying a dowel crown may fracture it to the apex. The same force on a molar or bicuspid containing a compound proximo-occlusal filling or inlay may produce the same results. Six-year molars, in children under ten years of age, in which the roots are not fully developed, have been for years a problem to care for successfully. Decay develops in a structural imperfec-

tion and advances rapidly until the entire occlusal portion is undermined; a cursory glance would reveal nothing unusual, but on breaking down the enamel we find a large mass of leathery decay extending to the pulp chamber, disclosing a pulp that has died or has passed through the various inflammatory changes, which render pulp capping impracticable or devitalization worse than useless. Prof. G. V. Black has taught us that the extraction of these teeth under such conditions is clearly indicated and clinical experience has borne out the wisdom of such advice. Teeth, in cases where the peridental membrane has been injured to any considerable extent either by cleavage of the root, perforation or absorption, are valuable in inverse ratio to the extent of such injuries, is also the teachings of this eminent thinker. The most vivid imagination could scarcely picture him in the role of an odontocide; malposed or partially erupted third molars, both lower and upper, serve no useful purpose in the dental economy. On the contrary impacted lower third molars are a constant menace. The V-shaped spaces formed by their malposed relations with the second molar acts as a nidus for pathogenic organisms to multiply and under favorable conditions, inaugurate a train of symptoms far reaching in their influence. Who can forget the clinical picture presented by an infected and partially erupted lower third molar? The hypertrophied operculum, trismus, adenitis, oedema and dysphagia once seen, never to be forgotten. No one could possibly advise the retention of such a tooth. Palliative measures may be resorted to such as incision or excision of the operculum, cautery, etc., but recurrence of the condition is the usual history. Disuse of a tooth, either by lack of occlusion or by mal-position invites pathological conditions which may eventually lead to its sacrifice. Nasal stenosis, from any cause, affects the oral cavity and teeth very unfavorably, and should be corrected at once to avoid these conditions.

Fortunate indeed is the young graduate who locates in a cultured community where his clientele appreciates the value of their teeth. When they place themselves in the dentist's charge they expect and demand his most careful attention. It is here that the extraction of a tooth is looked upon as a calamity. They do not seem to realize that even dentistry has its limitations. Fear lest his skill be questioned, may and often does cause him to treat teeth which he has long recognized as hopeless. Had this same man located in a community in

which his competitors' chief products were amalgam fillings and rubber plates his first duty would have been to teach his patients the value of their teeth. During this transitional stage he would be compelled, in a measure, to adapt himself to existing conditions. It is from necessity rather than election that he sacrifices teeth. The consent of the patient is a potent factor in determining the character of any dental operation. It is a far cry from a partial rubber plate to a porcelain bridge and progress must of necessity be slow. Is the repair of the teeth and the substitution of artificial ones the most sublime mission for the educated dentist? A few scientific minds think otherwise. They have lifted up their voices and made earnest requests for further research along prophylactic lines, but usually their voices have been lost in the wilderness of mechanical devices or drowned in the babble of contention between the low and high fusionists. The immunization of the teeth to carries, is the goal for which such men as Black, Miller, Williams and other master minds of the profession are striving. With the test tube and microscope they are blazing the way and humanity may yet behold the dawn of the freedom from caries, and the toll exacted by a complex civilization will have been paid forever. It is then that the tooth-extractor will be *persona non grata*.—*North Western*.

A CHALLENGE TO CANADA.

TO THE EDITOR OF DENTAL PRACTICE:

You may have forgotten my half promise made to you recently at Niagara-on-the-Lake, to explain more fully concerning my investigations as to the beneficent effect which the presence of potassium sulphocyanate in saliva seems to accomplish in preventing superficial enamel decay of the teeth, but you see I have not.

Dr. Eugene Talbot of Chicago once complained that his investigations regarding the cause of erosion, had not awakened sufficient interest so that anyone had taken the trouble to dispute the correctness of his findings.

To obviate the possibility of such an experience regarding the discoveries which I claim to have made, the following concise statement of them is furnished, and a challenge to the newly organized Department of Scientific Research in the Royal College of Dental Surgeons of Ontario is hereby issued:

The Challenge.—You are to prove and report or disprove and report on the correctness of the following deductions, which is the result of my investigations so far made:

First—Normal human saliva has in it, as one essential ingredient, always some percentage of potassium sulphocyanate.

Second—That depending upon a greater or lesser amount, the enamel of the teeth is kept immune from decay because the potassium sulphocyanate is a powerful solvent of all gelatinoid substances and that the bacteria present in the mouth are prevented by its presence in the saliva from making and forming upon enamel surfaces the so-called "Gellatinoid Plaques" first discovered by Dr. G. V. Black of Chicago.

Third—That the only contingency resulting in failure where considerable provings of potassium sulphocyanate are present in the saliva, is caused in very rare instances on account of the presence of large percentages of mucoid substances accompanying the potassium sulphocyanate.

Fourth—That the reason of failure under such circumstances lies in the fact that mucoid substances will answer to hold bacteria in a protected state upon enamel surfaces quite as effectually, though in an entirely different way; and that potassium sulphocyanate does not act as a solvent upon said mucoid substances.

Fifth—That in rare instances saliva is found deficient in potassium sulphocyanate; but still provided with some other—to the writer unknown—ingredient, which has the property of a solvent of gelatine to an extent quite equal, if not superior, to potassium sulphocyanate.

Sixth—That when discovered, unless this ingredient should prove also a solvent of mucoid substances as well as of gelatinoid plaques, that provings of potassium sulphocyanate in saliva should be considered more desirable.

Seventh—That the dental profession is warranted in the practice of medication by stomach, using $\frac{1}{2}$ grain doses daily, for all cases where enamel decay is prevailing and potassium sulphocyanate is absent in saliva, except where the mucoid substances are superabundant in saliva of afflicted patient; but under such circumstances immunity from enamel decay cannot be brought about by its administration.

Eighth—That potassium sulphocyanate medication has been proven, from clinical experience, to be very beneficial incidentally in obvi-

ating the extreme nervous state—bordering on hysteria—which is so often found to be coincident with rapid enamel decay in the teeth of young persons of both sexes, and in the teeth of young women who are *enceinte*.

The methods of investigation which have led to the foregoing conclusions can hardly be satisfactorily discussed by letter, but I make this offer: The Royal College may delegate someone to undertake inspection of them. They shall bear the expense of coming to Buffalo, but I will entertain as my guest whomever may be sent for this purpose. Very sincerely and cordially yours,

FRANK W. LOW.
—Dental Practice.



NORTHERN INDIANA MEETING.

An interesting meeting was held at Peru, Indiana, the 17th and 18th of September, being the nineteenth annual meeting of the Northern Indiana Dental Society. We missed the paper on "Successful Practice Building," by Dr. O. U. King of Huntington (with its subsequent discussion), but the success of Doctor King in his practice is a confirmation of his practical knowledge of the subject.

Dr. G. E. Hunt of Indianapolis, in his paper on "Dental Legislation," said, "What we need is more law enforcement, not more laws. Dr. Henshaw of Middletown (in his paper on "Some Changes Needed in Indiana Laws") said that some of the laws of Indiana are the *best* and do not need changing. He would, however, suggest the *necessity of county licenses*. Dr. Hunt again took the floor, giving us some information in regard to our relations professionally with Canada and saying that "reciprocal relations between states of equivocal laws are inevitable." Dr. Hunt of Kokomo approved of all this, giving Dr. Hunt the opportunity of the witty statement that his professional life had at last been rounded out and contoured, for, for the first time in fifteen years, Dr. Kirk had agreed with him.

Dr. Reeves of Chicago followed with a talk on "Cavity Preparation for Porcelain Inlay," with models and chart. One of the many good points advocated was the "extension for prevention—extend cavity to good glistening enamel." As a result of divergents of parallel walls, fillings will enter on wedge-shaped principle, and thus will eliminate thickness of metal, of which matrix is made. The doctor mentioned the subject of cavity formation for surface retention, saying that the greatest area of surface we can fit gives us more resistance per pound pressure.

The importance of beveling margins to a knife edge in the preparation of cavities was also forcibly illustrated. To aid in placing filling in cavity quickly, two suggestions were made. Corresponding marks in ink was Doctor Reeves' suggestion, and a small burr mark was Doctor Upjohn's method.

Dr. J. Q. Byram of Indianapolis opened the discussion, and when we say that he differed in almost every point as advocated by Doctor Reeves we have given the substance of his remarks, it remaining for Doctor Upjohn of Lafayette to pour oil on the troubled waters. Doctor Reeves subsequently arose, unscathed and smiling from the fray, and closed the discussion. There were a few dents in his armor and the point of Dr. Byram's sword showed service, but it had been interesting for all concerned and a whole lot had been learned. Doctor Reeves gave us a point of value foreign to the subject which had been under discussion, but very acceptable: "Air applied at a 30 to 40-pound pressure will relieve the sensitiveness of cavity preparation."

Some papers were not given as planned, but the supper served by the ladies Tuesday evening was according to program and proved one of the interesting features of the meeting. Doctor Hunt acted as toastmaster and the impromptu (?) speeches or toasts following showed that the dentists can make things interesting when they are on the "floor" as well as when they are at the chair.

INSTITUTE OF DENTAL PEDAGOGICS.

The next annual meeting of the Institute of Dental Pedagogics will convene in New Orleans, La., December 31, 1907, and January 1-2, 1908.

An exceptionally good program has been arranged by the Executive Committee. All dental college teachers are respectfully

requested to attend. Full announcement of the completed program will appear in subsequent issues of this journal.

B. E. LISCHER, Secretary-Treasurer.

IOWA STATE BOARD OF DENTAL EXAMINERS.

The Iowa State Board of Dental Examiners will hold its next meeting for examination at Iowa City, December 2, 3, 4, 1907.

Written and practical examination will be required. For further information address

E. D. BROWER, D. D. S.,

Le Mars, Iowa.

Secretary.

MINNESOTA STATE BOARD OF DENTAL EXAMINERS.

The next regular meeting of the Minnesota State Board of Dental Examiners will be held in Minneapolis at the Dental Department of the State University, on Tuesday, November 12, 1907.

All applications must be in the hands of the Secretary by October 29, accompanied by the fee of \$10.

Examinations begin at 10 o'clock sharp on the following subjects: Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Metallurgy, Pathology, Oral Surgery, Orthodontia, Operative and Prosthetic Dentistry. The practical examination consists of the preparation of a cavity and the making of a gold filling or the preparation of the root and the making of a crown, or both, for a patient supplied by the board.

All instruments and materials necessary to perform the required operations must be brought to the examination by the applicant.

A diploma from a recognized college must be shown. Any further information will be gladly furnished by

DR. GEO. S. TODD, Secretary,

Lake City, Minn.

NEW JERSEY STATE BOARD.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual examination beginning Monday, December 9th, and continue through the 10th and 11th. Practical operating and practical prosthetic work beginning 8 a. m. Monday, December 9th. Photograph and preliminary credentials must accompany the application. Meeting State House, Trenton, N. J.

For full information inquire of the secretary, Charles A. Meeker, 29 Fulton street, Newark, N. J.

NORTHERN ILLINOIS DENTAL ASSOCIATION.

The Northern Illinois Dental Association met in Rockford, October 17, and elected these officers for the ensuing year: President, A. M. Harrison, Rockford; vice president, C. J. Underwood, Elgin; secretary, C. L. Smith, St. Charles; treasurer, H. G. Logan, Aurora; supervisor of clinics, G. T. Banzet, Chicago. Freeport was selected as the next place of meeting.

SOUTHWESTERN IOWA ASSOCIATION.

Action was taken at the convention of the Southwestern Iowa Dental Association, held in Creston, to reorganize the dental districts into a state association. The following officers were elected: President, Dr. F. S. Schadel of Red Oak; vice president, Dr. J. W. Powell; secretary, Dr. T. H. Will of Red Oak; treasurer, Dr. G. E. King of Villisca.

ILLINOIS DISTRICT DENTAL SOCIETY.

At a meeting of the Dental Society, which comprises the counties of Morgan, Vass and Pike, held in Jacksonville, the following officers were elected for the ensuing year: President, Dr. Smith, Virginia; vice president, Dr. Charles Hopper, Jacksonville; secretary and treasurer, Dr. Fulton, Virginia; librarian, Dr. C. B. Powell, Jacksonville.

WEST VIRGINIA STATE SOCIETY.

The first annual meeting of the West Virginia State Dental Society met in Parkersburg, October 9. A very successful meeting was held. The officers are: President, Dr. H. H. Harrison of Wheeling; first vice president, Dr. Chas. H. Bartlett of Parkersburg; treasurer, Dr. D. C. Clark of Blacksville; secretary, Dr. F. L. Wright of Wheeling.

MISCELLANEOUS

DEODORIZER.

Tr. Lavender Comp. costs sixty cents per pound and may be diluted to make a gallon or more. A few drops of the diluted solution in your cuspidor will have a pleasant effect on your patients.—*H. E. Davis, Dental Review.*

LOWER PARTIAL PLATES WITH WIRE CONNECTION.

In the construction of a lower partial denture I most heartily endorse the use of a wire connecting the two sides. I have been using this for years, and I find it the most satisfactory method of putting in partial plates I ever employed.—*F. E. Roach, Review.*

GUTTA PERCHA FOR FILLING TEETH.

There is no filling material that will take the place of gutta percha except gold, and there are some places where you cannot put in gold and can put in a good gutta percha filling that will be more serviceable than anything else that could be placed in the cavity.—*Review.*

THE FIRST PERMANENT MOLAR.

The dentist is responsible in many cases for decay of the first permanent molars, because so little care is taken of the deciduous teeth that the parents get an idea that they are of little importance and they are not able to differentiate between the first permanent molar and the deciduous molar.—*Dr. L. S. Lourie, Review.*

HYDRONAPHTHOL AS A PULP-CAPPING.

To avoid the removal of the layer of softened dentine, which, if removed, would probably necessitate the removal of the pulp, mix equal quantities of hydronaphthol and cement, and place the mixture as a capping for the layer of dentine; after allowing it to set proceed with the filling. The hydronaphthol arrests bacterial action.—*A. W. McCall, Federal Dental Journal.*

FINISHING AMALGAM FILLINGS IN INTERPROXIMAL SPACES.

After removing the matrix band draw back and forth a moistened strip of rubber dam as you would sandpaper in finishing gold. Do this

before the amalgam has set thoroughly and you will have an excellent cervical margin and a surface that will need no further polishing. If rubber is stretched no metal will overhang the margin.----*Dr. M. E. Phelps, Summary.*

CELLOIDIN.

Is acid-free and dissolves in alcohol or ether (it is readily soluble in equal parts of both) to a clear, transparent collodin without any sediment. It is non-explosive and the following formula makes an excellent covering for the hands as a substitute for rubber gloves: Celloidin, 1 oz.; alcohol (96 per cent), 5 ozs.; ether, 5 ozs.; castor oil (to render the film elastic and flexible), $\frac{1}{4}$ to $\frac{1}{2}$ oz.—*Items of Interest.*

ACTION OF TOBACCO UPON THE TEETH.

After smoking a Havanna cigar I made cultures of my own saliva, and found it had the effect of retarding the growth of bacteria more than had any of the mouth washes I have experimented with. I took the culture just before the cigar, and then repeated every five minutes for one-half hour after smoking. I am of the opinion that if smokers kept their teeth clean—that is to say, free from foul deposits—and allowed the smoke to percolate around them, they would on an average have much better teeth than have the non-smokers.—*F. M. Wells, Dominion Dental Journal.*

A CORRECTION.

To the Editor of THE AMERICAN DENTAL JOURNAL:

Dear Sir—In the October issue of your journal the following appeared in the "Practical Hint" department, purported to have been taken from some of my writings in *The Dental Review*:

REMOVING A CONGESTED PULP.

A congested pulp in an anterior tooth is best removed by using crystals of cocain. Dry the cavity thoroughly and partially fill with powdered cocain. Then puncture the pulp with a sharp instrument, letting the serum saturate the cocain. Force this back into the pulp tissue, anæsthetizing it, so that it can always be removed without the least pain. If hemorrhage is not too profuse, fill at once.—*I. P. Buckley, Dental Review.*

To partially fill a cavity in a tooth with a drug as potent as cocain hydrochlorid, I consider very bad practice; and to fill the canal of a tooth immediately after a live pulp has been removed is contrary

to my practice and teaching. How it is possible to get this opinion from my writings is more than I can imagine. I trust you will publish this correction, as much harm could follow from the above practice.

Very truly yours,

J. P. BUCKLEY.

[The article in question was taken from another journal (not the *Review*), credit being given as per copy.—EDITOR.]

SOZODONT.

Sozodont is offered to the dental profession as one of the most valuable therapeutic resources for that large class of lesions encountered by the dentist, and designated simple idiopathic or non-specific, as for instance, pyorrhoea alveolaris, where a detergent dentifrice is a requirement of the first importance. In this class, also, fall those cases of hyperaemia or turgescence of the margins of the gums, superinduced by the adhesion to the teeth of salivary calculus, always so obnoxious to normal, rose-hued gum structure. Operations for the removal of salivary calculus are generally followed by more or less soreness or acute engorgement of those buccal structures directly in relation with the teeth, and here again the dentist recognizes the value of a resource having styptic as well as antiseptic and healing properties. Sozodont by the presence of its contained boracic acid, thymol and formalin, yields to the irritated structures the constringing and antiseptic effects of these well-known therapeutic agencies.

Quite another class of clinical cases usually for the time under the care of the physician, well known to the dentist under the designation, "specific," requiring the systemic exhibition of mercury and the iodides for their relief, are, nevertheless, much ameliorated by an agency like Sozodont, especially during the secondary period, when all the mucous surfaces are so constantly displaying lesions directly the outcome of the all-pervading constitutional infection. At this time the vulnerable buccal tissues are peculiarly susceptible to the irritation of jagged, irregular teeth, or ill-fitting dentures, and the physician is most liable to ask the assistance of the dentist as a specialist. It is not enough in these cases to be satisfied with the action of antiseptics alone, which render the morbid mucous accumulation inert for the time, but leave them still in contact with the diseased structures. The clinical demand is for a detergent dentifrice having both antiseptic and cleansing properties. Here again Sozodont is supreme in a sphere peculiarly its own.

THE RUBAIYAT OF A DENTIST.

BY HOWARD N. LANCASTER.

I.

Today is Tuesday of the passing week,
And I am going downtown—passing weak.
Some owing patients I must interview:
I pray I may have courage when I speak!

II.

So droll it seems—could I but laugh thereat!
There is a toothless Infant in my flat
For whom I have fixed many teeth and yet
For whom I must fix many more at that!

III.

Sometimes when dancing in the Gilded Hall,
With someone who is not my Choice at all,
And hangs most heavy on my arm, I still
Am gay for she has teeth to fix withal.

IV.

How often in the Moving Throng I pass
Some smiling Debtor-Patient, and alas!
'Tis then that I most impatiently yearn
To be the Gas Trust and shut off their Gas!

V.

At last this is the Day I've longed for so!
So many times I've seen Her come and go,
But this time, different from the rest, she came
And smiled and went and left—a Wad of Dough.

VI.

Strange, is it not, that what my Patients say
About their Bills, to-wit, they cannot pay,
I cannot to the Landlord gayly go
Repeat to him to wipe *my Debt* away?

VII.

Sometimes She comes and I through pity hark
To all her claims to Poverty and mark
Far down the price. Next time, in furs and silk,
She says the inlay is too light—or dark.

VIII.

A Stranger came. He'd cracked his upper plate.
He was in haste—he had not long to wait.
I lit the Vulcanizer, went to eat,
Returned, smelt something burning! 'Twas—the Plate!

IX.

The Porcelain Bridge we set our hearts upon
Turns out bad or it prospers. And, anon,
We place it firmly in the mouth, and then,
Wearing a little Hour or two—'tis gone.

X.

Have you not noticed how they come to you
And say they broke the Tooth off biting through,
Or partly through, a piece of Softened Soup?
Now, in the Next World, will we hear that, too?

XI.

I sometimes think that when they make a Fuss
About the Bill, and come in to discuss,
And eke to cuss, they do not mean it all!—
They still do have some little love for us.

XII

And when I hear them tell how many rows
Of teeth Dear Grandpa had, also how grows
The Baby's Toothlet, I look wise the while
And fondly think how red the Schoppen flows.

XIII.

I know the Poor Work that I did so long
Has done my Reputation a great wrong.
For aught I know Tomorrow I may think
That I've been doing Poor Work all along.

XIV.

It was when young I'd eagerly frequent
The Clinic, and would hear great Argument;
But then, returning to my office, find
Some Messengers my Creditors had sent.

XV.

'Tis with the Clinic as it is with Wine:
Touch neither and the soul will shrink and pine.
But, brother, let's be moderate with it all,
For we be not Immortal nor Divine.

XVI.

Perchance the very gold we use To-day
Was by the undertaker Yesterday
Filched from some quiet Mouth, and yet may serve
To gladden someone else—we cannot say!

XVII.

I sometimes see a Dentist in the Church
Grow sleek and fat and prosper, lurch on lurch.
Perhaps myself must envious grow and be
A Hypocrite or be left in the Lurch.

XVIII.

Ah me! Could you and I with Fate conspire,
 Ere we at last reach our turn to retire,
 To cause weak teeth to become weaker still,
 Then, Brother, we could move the Price up higher.

XIX.

She said this morning what I've heard before,
 That she must wait a while ere she have more
 Work done upon her teeth. I faintly smiled
 And handed her a side-comb from the floor.

XX.

Ah, know, My Brother, that our days are few.
 We Here and Now have still much Work to do,
 And, ere the Hand begins to shake, we must
 Save ere it is too late.—It's up to you.

XXI.

Yet, after all, what boots it to repeat
 How time is slipping underneath our feet?
 What though the Task be harsh and even long
 If only we can get enough to eat!

XXII.

Sometimes when to my Patient I explain
 And try so hard to make my meaning plain,
 I think no matter what I say it is
 No use. He thinks I do it all for Gain.

XXIII.

I always think that brightest shines the sun
 Upon the days when to me, one by one,
 The Postman brings the Checks for which I sent
 The Bills the moment that the Work was done.

XXIV.

Upon a day like that nothing must mar
 My deep Tranquility, and, though not far,
 I take a cab—ride to the Bank—meanwhile
 Between my teeth there is— a Good Cigar.

XXV.

Each morn a thousand roses brings, you say,
 But, pray, where are the Teeth which Yesterday
 We fixed? How often thinking of them do
 We hope the Work we did holds good To-day!

XXVI.

For aught we know the ocean now may hold,
 Among the scattered pearls within its old
 Embrace, some Other Pearls which once were placed
 'Neath Rosy Lips and which we've set with Gold.

XXVII.

Sometimes when boldly I say so and so's
 The Fee, that never less than that it goes,
 My Office-Girl looks wise the while because
 She knows about it all—SHE knows—SHE KNOWS!

XXVIII.

And yet, the Landlord, rigid in his Fee,
 Denies me not an opportunity,
 Yes, even his own harshness to atone
 By frequent deeds of Gentle Charity.

XXIX.

Ah, Brother, I have done good work this day,
 And, though it may transpire I'll get no pay,
 I still do feel much happiness withal
 For surely I have done Good Work to-day.

XXX.

Mayhap the tooth that I fixed Yesterday
 Is broken down and gone back to decay.
 Ah, yes, perchance my hand did tremble, but
 The Hand that **made** it—did THAT tremble, pray?

XXXI.

Some of my patients say they have no pain,—
 That no such thing exists and yet they fain
 Would have me ease their aching teeth for them
 And then, quite gaily, they come back again.

XXXII.

So droll it seems when they prate of "The Truth"
 And say that God, unaided, heals, forsooth,
 And conquers all Disease and even Death
 And yet they come and bring to me their tooth!

XXXIII.

Yet, after all, what if the pain they feel,
 And Matter also they contend unreal?
 If they will but believe my Bill is due
 Then I can go and purchase me a Meal.

XXXIX.

Immortal Substance I hold close to me,
 And daily, fondly seek thy Mystery,
 Ah, who are they that of the Spirit boast
 And impotent flout thine Eternity?

XXXV.

One day She wore a gown composed of rows
 Of little holes 'neath which her bosom rose.
 I careless dropped her porcelain filling through
 Beyond my reach. Ah, whither flown?—Who knows!

XXXVI.

Alas! Perhaps no more of Her I'll see!
 One day I took her out to dine with me,
 And now, since I have rendered her my Bill,
 She thinks I've added both checks to the Fee.

XXXVII.

How rich to see some fair Face with its wreath
 Of flowing hair and large, dark eyes beneath—
 Some fair One near me in the car and think
 That some day I may work upon her teeth!

XXXVIII.

Sometimes when The Work crowds and holds me down
 I often think of what a great renown
 Would be if but some Power would devise
 A Molar Tooth without a Root—or Crown.

XXXIX.

Ah, Brother, those are pleasant days to me
 When someone sings their Dentist's praise to me.
 I argue that, if I deserving be,
 Someone some day may have some praise—for me.

XL.

These teeth we daily work with, one by one,
 These curious particles of Dust and Sun,
 Who knows of all the Million Ages passed
 Since their slow, shifting being was begun?

XLI.

Turned on the Wheel of an Eternity—
 It often seems irreverent to me
 That I can in an Instant grind away
 What Ages cherished. Ah, the Blasphemy!

XLII.

It sometimes seems the Universe has lied.
 My Work's not Perfect howsoe'er I've tried.
 Yet well I know that my salvation lies
 In that I never am—quite satisfied.

XLIII.

And sometimes when she comes impatiently
 And shows me some gross flaw that she can see,
 It is not her I do it over for—
 I tear it out and build again—for me.

XLIV.

Of those who help me as I labor on,
 The most have through the Door of Darkness gone
 And left me to continue with the Task.—
 Oh wondrous thought for me to think upon!

XLV.

From some Forgotten Sepulchre each one
Lifts up a withered hand toward the Sun,
Holding the Written Scroll for me to read
And, writing, leave behind when I am done.

XLVI.

Some, praying, ask for Hell's Immunity;
And some for This World's charity, they say.
But, after all, I've found My Work to be
The only prayer that's answered—when I pray.

XLVII.

Once I sought Love to wanton at her breast,
And then deep in the Wine I sought for rest.
But many times after great searching found
My Work the only Heav'n that made me blest.

XLVIII.

Love was not always what she seemed to be,
And Time betrayed the Wine-Cup's usury.
Ah, now I pray that many morns may pass
Ere aught shall come between my Work and me!

XLIX.

There is no better piety on earth
With which to pay the Past for having birth
Than leave the Future's Past some Little Good
Ev'n though that Little Good have little worth.

L.

And this direct from Omar.—When we've passed
Beyond the Veil how long, how long will last
The World which our Departure seems to heed
As the sea's self would heed a Pebble cast!

PERSONAL AND GENERAL

Ford-Smith.—Dr. Zachary D. Ford and Miss Adelayn Smith, both of Chicago, were married October 16th.

Moore-Gregory.—Dr. Virgit Moore and Miss Mary Alice Gregory, both of Newbern, Ky., were married October 16th.

Woman Dies in Dentist's Chair.—Mrs. Joseph Morrison, of Bath, Maine, died in dental chair from effects of chloroform, October 14th.

Dentist Insane.—A dentist in Ithaca, N. Y., who is internationally prominent, nearly killed a mail carrier in that city as he was delivering mail to the dentist, in a fit of insanity.

Dentist's Automobile Kills.—A dentist in Newark, N. J., is under arrest for running over and killing Marcus J. Jacobs, manager of the Columbia Theater in that city, with his automobile.

Bankruptcy.—Herbert Sylvester, a dentist at Wilksburg, Pa., has filed a petition in bankruptcy in the United States District Court of Western Pennsylvania. His liabilities are given at \$1,023.10, and assets at \$433.25.

Barber Practices Dentistry.—A barber in Chicago was arrested October 4th for practicing dentistry without a license. He is said to have operated a combination barber shop and dental office as in ye ancient times.

Seriously Ill.—Dr. G. Ferguson, a prominent Ontario dentist, is dangerously ill in New York City and is not expected to recover. He is a graduate of the Philadelphia Dental College in 1905. His former home was in St. Thomas, Ontario.

Dentist Identifies Corpse.—After the remains of a young man who was killed by a train in Detroit, Mich., had been identified as the son of Lawrence McMullin, of Detroit, and prepared for burial, it was proven to be a case of mistaken identity by the family dentist.

Judgment Against Dental Parlors.—A judgment of \$100.00 and costs was assessed against a dental parlor in Los Angeles, Cal., September 23rd. The suit was for damages for negligence and inexperience in breaking off crown of a tooth in an attempt at extraction.

Venerable Dentist Found Ill and Starving.—Dr. Frank A. Ramsey, an aged dentist, was found unconscious at his home in Norristown, Pa., having been without food for several days, is in a serious condition. He lived in a large mansion alone, his housekeeper having left.

Shoots Out Teeth to Stop Their Aching.—Frank Zymosál, of Carnegie, Pa., could not stand the pain of two aching teeth and placed the muzzle of a revolver to the left side of his mouth, looked in a hand mirror, aimed at the aching teeth and fired. The bullet struck his eye and the aching teeth are still working.

State Dental Board.—The following changes were made in the California State Dental Board by the governor September 26th. H. R. Harbison, of San Diego, and D. Mayrice Crow, of Los Angeles, were appointed to the State Board of Dental Examiners, to succeed E. G. Howard, of Los Angeles, and G. A. White, of Santa Barbara.

Death from Chloroform.—A. F. Scott, a lumberman of Bessmay, Texas, died September 23rd, from the effects of chloroform administered for tooth extraction. On the day previously he had taken chloroform and had a number of teeth extracted, returning the next day to have the remaining teeth taken out, chloroform was again administered with fatal results.

Prosecutions of State Boards.—Dr. Len, a Chinese dentist, was arrested September 20th on complaint of the State Dental Board for practicing without a license. A dentist of Salt Lake City was fined \$50.00 and costs for illegal practice. Two dentists in New York City were arrested for practicing without a license, the evidence being gathered by their lady detective. A dentist in Toronto, Canada, is under arrest charged with practicing dentistry illegally.

Robberies.—Drs. T. S. Smith, Palo Alto, Cal., loss, \$25.00; H. C. Reynolds, Palo Alto, Cal., loss, \$25.00; C. S. McCowen, Palo Alto, Cal., loss, \$25.00; C. E. Tenney, Dayton, Ohio, loss, \$75.00; G. M. Gearhart, Greenville, Ohio, loss, \$125.00.

Removals.—Drs. G. B. Mann from Spokane, Wash., to Newport, Wash.; H. F. Hughes from Tiger, Wash., to Newport, Wash.; J. H. Hobson from Richmond, Ky., to Lexington, Ky.; J. F. Paschek from Paducah, Ky., to St. Louis, Mo.; J. W. Powell from Whiteville, N. C., to Wilmington, N. C.; E. E. Cook from La Crosse, Wis., to Letcher, S. D.; J. W. McVicar from North Branch, Mich., to Manistique, Mich.; P. H. Simpson from Albany, Ill., to Morrison, Ill.; J. W. McCarthy from Springfield, Mass., to Holyoke, Mass.; H. S. Welch from Van Wert, Ohio, to Delaware, Ohio; C. H. Metsker from Plymouth, Ind., to Huntington, Ind.; B. S. Gardner from Dowagiac, Mich., to Gary, Ind.

NECROLOGICAL.

Dr. Harry B. Campbell, a dentist at Bridgeton, Pa., died of typhoid fever recently.

Dr. A. H. Coolbaugh, a dentist at Kingston, Pa., died October 1st, of heart disease.

Dr. Edward L. Sargent, a dentist at Watertown, N. Y., died September 29th. He was thirty-five years of age.

Dr. John Vallerchamp, a dentist at Harrisburg, Pa., died October 9th, at Bloomsburg, Pa. He was seventy-four years of age.

Dr. John M. Saucerman, a dentist at Freeport, Ill., died October 19th, of spinal trouble. He was forty-one years of age and was a graduate of the Chicago Dental College.

DR. J. W. TIFFIN, a graduate of the Missouri Dental College, '94, died in Deming, N. M., of tuberculosis, September 15. Dr. Tiffin was last in practice in Colorado, but moved to Deming on account of failing

VISITS FATHER.

Dr. Charles Shepard Tuller, who is enjoying a lucrative practice in New Orleans, has been spending his summer vacation in Chicago with his father, Dr. R. B. Tuller, and among the many friends of his boyhood home. He thinks Chicago about an ideal summer resort.

VISITS CHICAGO.

Dr. Robert H. Welsh of New Orleans has again been enjoying Chicago as a summer resort, and visiting dentists of this city, among whom he has many friends.

August 12, 1907.

Geo. W. Cook, D. D. S., Chicago, Ill.

My Dear Doctor.—Our law does not prevent a physician from extracting teeth. Consequently your statement in the August number of the Journal is not correct.

Dr. E. R. Taylor is a licensed physician and claims the right under his medical license to practice dentistry. He was arrested for making and fitting of plates. The case has been submitted on briefs. The decision of the judge we are expecting any time now. Dr. T. has filled teeth and made crowns, etc.

Respectfully,

J. W. Penberthy.

Fig. 1.

863,478. Dental Engine.—Wallace W. Williamson, Syracuse, N. Y. Filed January 7, 1907. Serial No. 351,135. Claim.—1. In combination with an electric-motor and circuit therefor, a power-transmitting mechanism adapted to be thrown into and out of operative relation with the motor, and circuit-making and breaking means controlled by the said power-transmitting mechanism as and for the purpose set forth.

Fig. 2.

856,352. Mouth-Prop.—Roy L. Magoon, Graceville, Minn. Filed October 11, 1906. Serial No. 338,520. Claim.—A mouth prop comprising two arms, one of which is provided with a shank portion having ratchet teeth upon the edge thereof and provided with a longitudinal groove, the other provided with a hollow shank in which the shank with teeth thereon is adapted to telescope, the edge of the hollow shank designed to engage said teeth whereby the arms may be held from moving toward the other.

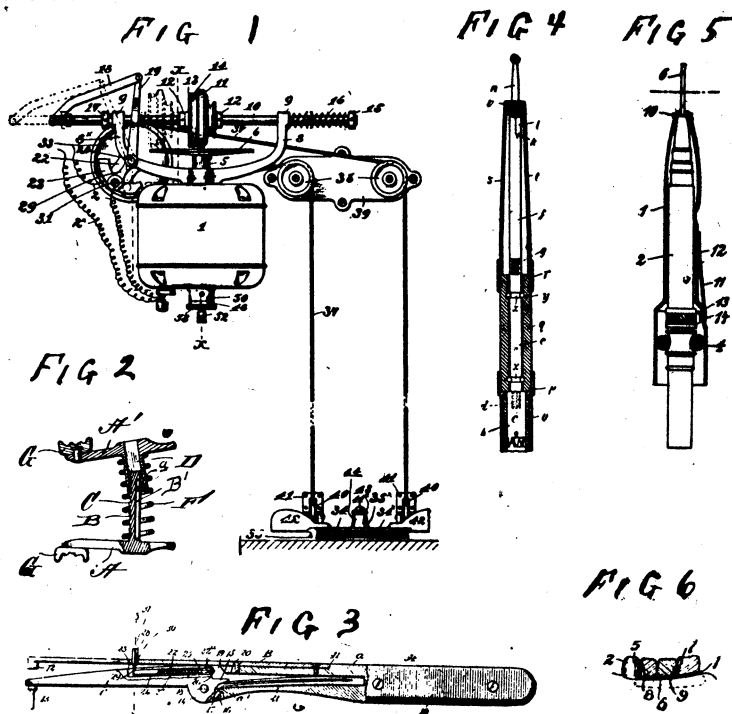
Fig. 3.

863,478. Dental Engine.—Wallace W. Williamson, Syracuse, N. Y. Filed November 23, 1906. Serial No. 344,718. Claim.—1. In a dental plugger, a handle, a spring arm secured to the handle, extending beyond the same, a mallet at the outer end of the spring arm, a tension-controlled

anvil arm located below the extending portion of the mallet carrying arm, both arms being free to operate, and both arms being uncased, a plugger point for the anvil arm, and an adjusting device for regulating the throw of the mallet arm.

Fig. 4.

863,006. Handpiece for Dental Engines.—Jeffrey H. Springle, Montreal, Quebec, Canada. Filed October 26, 1904. Serial No. 230,098. Claim.—1. In a dental hand piece a tool carrying member made in separable parts constructed to receive the tool between them and retain such tool against longitudinal displacement, and detachable means, whereby the said separable parts are secured together for the purpose set forth.



866,518. Drilling Apparatus for Dentists.—Paul Repsold, Riga, Russia. Filed June 13, 1906. Serial No. 321,526. Renewed August 16, 1907. Serial No. 388,818. Claim.—1. Drilling apparatus comprising a drill, a hand piece therefor; arranged around said hand piece a tubular casing whose fore end is adapted to grip said drill; and, interposed between said casing and hand piece, an elastic pad.

Fig. 6.

852,413. Removable Dental Bridgework.—Ernest C. Bennett, New York, N. Y. Filed May 18, 1906. Serial No. 317,495. Claim.—1. A denture comprising two stationary abutments, a bridge removably carried by each abutment and extending to the rear thereof, and reinforcing wires extending around the teeth and connecting said bridges.

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Dental practice and complete electric outfit in good Illinois town or will exchange for city practice of equal standing.

Address M. A., care of Frink and Young.

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ARTHUR E. PECK, M. D., D. D. S.
403 Medical Blk., Minneapolis, Minn.

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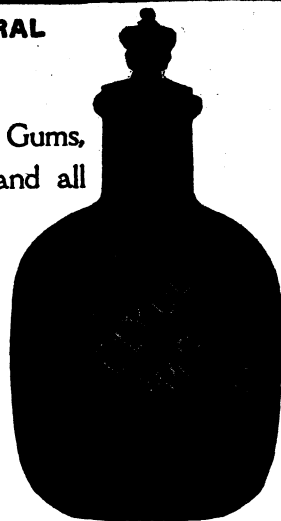
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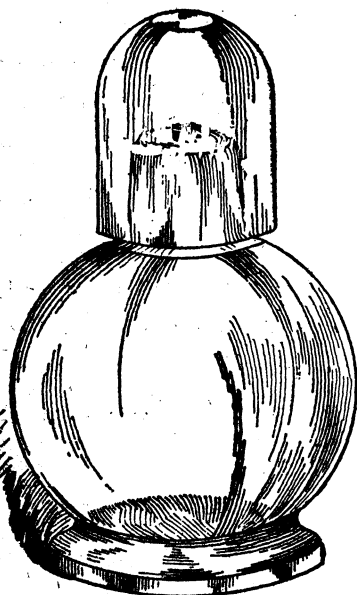
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